

Doctoral Thesis

The Size and Design of Child Benefits in Europe: Pronatalist Orientations and Implications

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Thesis Outline

Overarching research questions:

1. How does fertility incentivisation interact with other policy considerations around the size and design of child benefits in European countries?
2. What underlying socio-political and demographic implications are posed by the main trends in child benefit size and design in European countries at a time of increasingly common pronatalist policy and discourse, and for whom?

Paper 1

Research question: What policy orientations are reflected in the variation in child benefit size by age, birth order, and household income in Europe?

Method: Microsimulation of Child-Contingent Payments (CCP)

Data: OECD TaxBen; national government sources

Paper 2

Research question: What discursive frames and techniques have pronatalist governments in North Macedonia and Serbia used to frame low fertility as a policy problem?

Method: Framing Analysis

Data: Country-level government and media sources

Paper 3

Research question: How do macroeconomic, sociocultural, and political factors influence the level of child benefit size in Europe and its variation by birth order and household income?

Method: Pooled time series regression with country-fixed effects

Data: OECD; European Social Survey; United Nations; World Bank; Comparative Political Dataset (CPDS)

Paper 4

Research question: What is the relationship between the size and design of child benefits and fertility rates in Europe?

Method: Pooled time series regression with country-fixed effects

Data: OECD; World Bank Population Database; Human Fertility Database

Thesis Abstract

This doctoral thesis studies the size and design of child benefits in Europe, with a special focus on their pronatalist orientations and implications at a time of low fertility rates and broader demographic change. Historically, but most saliently over the past few decades, population concerns have sparked a wide range of policy debates about overburdened social systems and depleted workforces, as well as political anxieties about identity erosion and national survival. Over the same period, and partly relatedly, family policy has generally grown in both size and complexity to reflect the increasing pluralisation of family as an institution and the growing number of objectives associated with it as a policy field, including fertility incentivisation.

Against the backdrop – although not necessarily as a result – of demographic change, many European governments have adopted pronatalist political orientations and some have introduced specific pronatalist policies. This thesis focuses on (directly issued and tax-based) child benefits as a frequently central component of the pronatalist policy toolkit. Epistemologically, it takes an interdisciplinary approach drawing on several strands of the academic literature to identify the key structural and socio-political considerations around child benefits and fertility incentivisation, which in turn inform the analytical focus of the four standalone empirical papers in the thesis. These strands include but are not limited to the scholarship around child and family policy, demographic change, childbearing decision-making, nationalism, post-materialism, welfare chauvinism, and macroeconomic drivers and constraints. The four standalone papers are thus focused on the design (Paper 1), pronatalist discourse (Paper 2), drivers (Paper 3), and fertility effects (Paper 4) of/around child benefits in (Eastern) Europe, respectively, and take a particular interest in the variation in benefit size by child age and birth order and its implications.

The overarching research questions asked in this thesis, which are answered through mixed (quantitative and qualitative) methods, read: *(1) How does fertility incentivisation interact with other policy considerations around the size and design of child benefits in European countries?* and (2) *What underlying socio-political and demographic implications are posed by the main*

trends in child benefit size and design in European countries at a time of increasingly common pronatalist policy and discourse, and for whom? By providing answers to these questions, the thesis seeks to contribute to (parts of the) scholarly debates around the relative merits of policy targeting and universality, the types of needs addressed by family and social policies, the types of families for which said needs are (attempted to be) addressed, and the socio-political implications of the predominantly national-conservative dimension(s) of contemporary child benefits and fertility incentivisation.

More specifically, Paper 1 examines the variation in the size of child benefits in Europe at different child ages (2, 9, and 17 years old) and birth orders (from first to fourth) at different levels of household income (middle- and low-income) in 2006 and 2021. It proposes (sometimes complementary and sometimes conflicting) hypotheses for the expected patterns of variation in benefit size by child age and birth order based on four policy objectives commonly associated with child benefits in the literature – child cost compensation, fertility incentivisation, child development, and poverty reduction. Using a microsimulation model for (up to) 29 European countries, it finds strong cross-country heterogeneity, with fertility incentivisation and child development emerging as the two most commonly reflected policy orientations. A particularly striking finding is the low level of commonality of poverty reduction, as large low-income households, which are disproportionately likely to be poor, often receive the smallest benefits (in per-child terms) across Europe.

Paper 2 explores the discursive representations of low fertility as a policy problem (with child benefits as a discursively proposed policy solution). By using the Frame Analysis method and drawing on the academic literature on low fertility and post-materialism, it examines the relative salience of socioeconomic, patriotic, ethnic, and moral concerns articulated by policymakers regarding low fertility. It also assesses the use of discursive techniques such as frame amplification, frame bridging, frame extension, and frame transformation in articulating said concerns. Drawing on 58 utterances of pronatalist government discourse (10,5 hours of recorded material) in North Macedonia and Serbia, it confirms its theoretical expectation that patriotic and

moral concerns prevail over socioeconomic ones among conservative policymakers introducing and implementing pronatalist policy. It also posits that differences in interethnic relations and party competition between the two countries might have contributed to the presence or absence of the ethnic frame around low fertility.

Paper 3 tests the relationship between five macroeconomic, three sociocultural, and three political factors and the aggregate and birth order-specific size of child benefits in middle- and low-income households in (up to) 26 European countries between 2002 and 2021. The most frequently (negatively) associated factor is immigration stock, but child benefit size is also (in some of the regression models) associated with inflation (negatively), GDP (positively), pro-immigration attitudes (positively) and right-wing party strength (positively and negatively depending on the household income category). Moreover, the difference in benefit size between middle- and low-income households was found to be generally lower in instances of higher unemployment. These findings reinforce – and offer nuance to – the scholarly consensus around child benefits as a multi-layered policy instrument, whose size can be facilitated and constrained by a complex interplay of macroeconomic, sociocultural, and political factors.

Paper 4 examines the relationship between benefit size and fertility. It conducts another pooled time series regression (with fixed country effects) on the relationship between aggregate, child age-specific and birth order-specific child benefit size and aggregate and birth order-specific fertility rates in the same 26 European countries between 2002 and 2021, while controlling for macroeconomic conditions and other family policies. It finds a (small) positive and statistically significant association between aggregate benefit size and fertility rates, reaffirming the scholarly consensus around child benefits as an important component of the pronatalist policy toolkit. It also provides partial evidence of a "pronatalist premium" in size variation in favor of higher birth orders (third and fourth children), a variation pattern which has emerged as a major policy trend in recent years.

Through its four empirical papers, the thesis seeks to strengthen and expand the understanding

of child benefits in the family policy, demography, and political science literature amidst the growing scholarly interest in – and rising prominence of – both child benefits and fertility incentivisation in the contemporary European family policy landscape(s) and low-fertility context(s), with manifold implications for families, societies, and governments.

Theoretical and Empirical Background to the Research Topic

This doctoral thesis on child benefits and fertility incentivisation is situated at the intersection between family policy, social policy, demography, and political science. It takes a non-deterministic view of pronatalism as a political and (set of) policy orientation(s) adopted by policymakers in pursuit of stated (fertility incentivisation) and unstated political and policy objectives within the constraints of various structural configurations and path dependencies. It explores fertility incentivisation in its own right as well as relative to other policy goals through the lens of child benefits: the oldest family policy instrument. This instrument is increasingly deployed in the service of fertility incentivisation across Europe, especially but not solely in post-socialist Eastern Europe. By studying its policy manifestation, discursive representation, driving forces, and fertility effects, this thesis seeks to contribute to the understanding of pronatalism as a growing political and policy phenomenon through an interdisciplinary lens.

This background chapter summarises and discusses the key existing scholarship on child benefits and pronatalism from the aforementioned academic fields and identifies the knowledge gaps which this thesis seeks to fill. It is divided into seven sections. The first (and largest) section sets the stage for the thesis by summarising the key theoretical notions and empirical trends in contemporary family policy. It also defines child benefits, situates them within the broader theoretical debates around family policy, and provides an overview of key historical and contemporary trends in their provision. It pays particular attention to the structural and socio-political considerations around family policy and child benefits over time and today. It posits that such considerations have (re)shaped child benefits by reinforcing their importance in some ways and challenging it in others. This section also pays particular attention to variation in benefit types and the implications of such policy design choices for some of the most common policy functions of child benefits. Finally, it distinguishes between family policy aspects relating to the dynamics within families and those relating to the dynamics between societies and families, situating the pronatalist function of family policy (mainly) in the second category.

The second section provides a theoretical and historical account of pronatalist policies (including child benefits) and politics and identifies several points of (dis)continuity across time and space. The third section outlines several socio-political factors relevant to contemporary pronatalism, which it situates within the broader (re)embrace of nationalism in contemporary societies and the phenomenon of "re-traditionalisation" in Eastern Europe, where some of the most notable contemporary pronatalist cases are located. The fourth section outlines several structural considerations relevant to contemporary pronatalism in terms of demographic change and its implications. The fifth section outlines some key contemporary examples of explicitly pronatalist child benefits and discusses their key features in comparison to their most important historical precursors.

The sixth section outlines the theoretical framework derived from the previously presented material (and informing the empirical components of the thesis). Finally, the seventh section concludes this background chapter by outlining the analytical strategy of the thesis and its intended contributions. Most of said contributions stem from findings related to the two types of variation referenced in the thesis title: variation in child benefit size by the age and birth order of the child. Both of these variation patterns are underexplored in the existing literature, despite their centrality to the policy design, driving forces, and fertility effects of child benefits, in light of the relatively recent and growing (re)emergence of pronatalist benefit packages in (primarily Eastern) Europe. By operationalising child benefits in terms of these two variation patterns, as well as in terms of the better-but-still-imperfectly-understood variation by household income, this thesis is well-positioned to contribute to an improved academic understanding of said policy design, driving forces, and fertility effects.

I Family policy and child benefits: drivers, trends, and implications over time

A family is "a small social unit where adults are living together, alone or with children" (Bertram & Kohl 2010: 6). While the relative frequency of some types of families over others has changed considerably over time (Naldini 2023), there is currently a reasonable amount of consensus

around the basic (descriptive rather than normative) definition of a family provided above.

Yet, there is less of a consensus on what constitutes "family policy". One famous definition by Kaufmann (2002: 422) describes it as a set of "political interventions explicitly aiming at or implicitly operating to improve the life situation of individuals in the context of their family rights and obligations". Kamerman (2010: 430) defines it more cautiously as "those public policies – such as laws, regulations, administrative policies – that affect the situation of families with children – or individuals in their family roles – and thus have clear, though possibly unintended, consequences for such families", highlighting the occasional mismatch between family policy intentions and outcomes. An even more neutral definition is offered by Bahle (1994: 4), who speaks of "any public policies that intervene into the relationship between families (or family members) and society or into the relationships between family members", thus treating family policy more as a set of *attempts* at affecting the situation of families.

A crucial point of nuance in Bahle's definition is the distinction between: (1) the aspect of family policy relating to the dynamics within families and (2) the aspect of family policy relating to the dynamics between families and societies (although the two are not mutually exclusive), a distinction echoed also by Saraceno (2022: 11), who refers to "social provisions which (re-)distribute responsibilities within families, between the sexes and generations, and between families and the state". While the dynamics between families and societies constituted the primary objective of family policy in its incipient phase(s) in the late 19th and early 20th century (as will be shown below), both of Bahle's aspects are highly relevant to any discussion of family policy today. As will be elaborated throughout this section, however, this thesis is mainly (although not solely) interested in the dynamics between families and societies.

In terms of its historical drivers, the evolution of the study of family policy has been typical in some ways and atypical in others. As is the case for most policy scholarship, it is helpful to distinguish between structural and socio-political factors that have shaped family policy over time and continue to do so today. In some ways, family policy has emerged in response to – and

moved in congruence with – developments within the realm of connections between states, markets, and societies more broadly. In the late 19th century in Western Europe, family policies originated in the context of industrialisation and the increased capacity of states to meet the needs of their populations, at a time when those needs were becoming more complex due to an unprecedented mass entry into formalised employment arrangements (Bahle 1994; Gauthier 1996). It is thus impossible to understand family policy independently from the structural considerations surrounding it, as these constitute the "skeleton of society which shapes the fields of consensus and conflict and gives lasting support to some development and simultaneously hindering others" (Kaufmann 2002: 458).

Yet, structural factors must be considered alongside the role of norms and actors. As Saraceno (2022: 6) has remarked, Kaufmann's aforementioned 'skeleton' "is not impermeable to social and cultural change". This is best evidenced by the ample cross-country variation in family policies in Europe – both over time as well as today – despite largely (albeit not exclusively) contemporaneous socioeconomic developments. Thus, family policy has tended to operate in a space of complex normative contestation of the relationship between families, states, markets, and societies, as well as the very understanding of each of these elements individually (Pfau-Effinger 2004).

In fact, family policy might be even more sensitive to socio-political factors than many other policy fields. As Fleckenstein and Mohun Himmelweit have put it (2023: 271), family policy is a "domain in which the politics of ideas and ideational change are particularly pronounced, as they relate to competing values about the social order, in terms of public and private responsibilities, gender roles, and the appropriate way to raise children". As will be elaborated throughout this section, this thesis adopts the dynamic understanding of family policy in the comparative literature, where ideas have been treated as a key driving force of change (e.g. Kamerman & Kahn 1978, Lewis 2008, Blome 2016, Fleckenstein & Lee 2017).

More generally, however, it is fair to say that family policy has become considerably larger and

more complex over the years due to a combination of structural and socio-political factors. All three instruments in the core family policy triad – child benefits, leave provisions, and childcare services – have expanded drastically since the end of the Second World War, and particularly in recent decades. Daly and Ferragina (2018) distinguish between two major stages of growth. The first one is the "foundational phase" (from the 1960s to the 1980s), where the two older components of the triad (benefits and leave) were expanded and improved in various ways. The second stage, on the other hand, which to an extent can be considered ongoing (Bahle 2023), has seen the expansion of childcare services and the qualitative and quantitative reform of paternity and parental leave in a more gender-balanced direction. Both stages have occurred against the backdrop of – and largely in response to –structural factors (increased female employment) as well as socio-political factors (liberalising gender norms and growing recognition of the rights and needs of children) (Daly 2019; Ferragina & Seeleib-Kaiser 2015).

Overall, family policy has seen clear growth over time, even if in parallel with the stagnation and occasional retrenchment of social policy more broadly (Korpi & Palme 2003). This trend has led scholars to conclude that family policy is no longer (merely) a "perspective" (Kamerman & Kahn 1978) that draws upon broader conceptions of various policies with only a partial reference to families, but rather an explicit (albeit still conceptually contested) and firmly established policy field (Daly 2019).

Family policy in the context of the dynamics between family members

As regards the aforementioned distinction by Bahle (1994) and Saraceno (2022) between the two key aspects of family policy (the dynamics between family members within families and those between families and societies), this thesis, as will be elaborated later, is predominantly focused on the latter aspect through the lens of child benefits as a family policy instrument.

However, it is also worth providing a brief discussion of the former aspect, as the previously discussed growth of family policy over time has been accompanied by strong cross-country variation in the exact policies adopted, with important implications for the dynamics between

family members. Scholars have sought to identify these implications through the ways in which states affect families, including through markets as a mediating actor. Conceptualising the former as (de)familialisation (Orloff 1993; Lister 1994; Sainsbury 1999) and the latter as (de)commodification (Esping-Andersen 1985; 2002; Saraceno 2017), scholars have proposed several family policy models (Misra et al. 2007; Saraceno & Keck 2010; Korpi et al. 2013; Ferragina & Seeleib-Kaiser 2015), mainly in reference to Western Europe. Overall, these models, as they seek to locate the family within welfare regime typologies (e.g, Esping-Andersen 2002) based on observable policy trends and group welfare states accordingly, share more similarities than differences; the following paragraph summarises Saraceno (2017)'s typology.

The first family policy model is "implicit familialism" (at times referred to as "familialism by default"), where the state provides little to no support on family matters, thus implicitly relegating care-related responsibilities to the family domain. The second one is "explicit familialism" (at times referred to as "supported familialism"), where the state provides some support on family matters; yet, in doing do, it only reinforces the key role of the family in performing care-related responsibilities. The third one is "commodified defamilialisation", where the family yields (some) care-related responsibilities to the state, but state support is conditioned on the relationship between families and the market. Finally, the fourth one is "decommodified defamilialisation", where care-related responsibilities are at least partly fulfilled by the state. As is the case in most other works cited above, Saraceno (2017)'s four models are mere ideal-types and do not capture the full variation in care arrangements in developed countries. Moreover, they often encompass not only child-related but also elderly-related care. Overall, however, these family policy models provide an important overview of the relationships between the state, the family, and the market through the prism of various structural and socio-political factors.

Of the family policy triad discussed earlier, child benefits are probably the most difficult policy instrument to classify into these policy models. As will be shown in more detail in the next few paragraphs, child benefits can constitute either a social or a fiscal policy, with a general trend towards the latter in recent years, given their occasional yet increasing restriction of their eligibility to employed parents (Ferrarini et al. 2012). Child benefits are even harder to classify in

terms of the (de)familialisation dichotomy. As Saraceno (2022) points out, scholars have placed child benefits into different categories based on their research angle. On the one hand, child benefits can be seen as defamilialist (Kurowska 2018) in the sense of alleviating parents' (i.e. the family's) financial burden of childrearing. On the other hand, they can be regarded as familialist (Saraceno & Keck 2010) in the sense that they reinforce parents' role as primary child carers (as opposed to, for instance, the clearly defamilialist nature of childcare services). Finally, the classification problem is compounded by the sheer variation in child benefit packages (discussed in more detail below), which tend to differ more between countries than either leave provisions or childcare services (Bahle 2023).

Partly due to these classification issues, but, more importantly, due to the secondary role of child benefits (compared to the rest of the family policy triad) in the debate on the implications of family policy for the dynamics between family members within families, this thesis is primarily interested in this policy instrument in terms of its influence on the dynamics *between families and societies*. This necessitates a discussion of the (societal) policy objectives of family policy as a tool for improving the well-being of individual family members (mainly children) both as an end in itself as well as for the benefit of societies at large, in line with Kaufmann (2002)'s classical view of families as "private institutions of public interest".

Child benefits in the context of the dynamics between families and societies: an overview of key trends and implications over time

Unlike the family policy aspect relating to the dynamics within families, when it comes to the family policy aspect relating to the dynamics between families and societies, child benefits take centre stage. Alongside parental leave and childcare, child benefits have been recognised as central in aiding states to fulfil various social functions regarding children, such as replacing (part of) the cost of raising children and reducing child poverty (Bradshaw & Nieuwenhuis 2020), as well as facilitating the physical and cognitive development of children (Pavolini & van Lancker 2018).

In terms of definition, "child benefits" is an umbrella term for all forms of government-provided

monetary support issued for childbearing and/or childrearing purposes, typically to parents or legal guardians (MacNicol 1992; Wennemo 1994; Gauthier 1996). As a complement to household income, it excludes income-substituting support (i.e. maternity, paternity, or parental leave). It does, however, encompass a wide range of support packages, including universal child benefits, employment-based child benefits, income- or means-tested child benefits, child tax allowances, child tax credits, and child tax rebates[1]. Given the social (rather than fiscal) connotation of the term "benefit", child benefits that are issued through fiscal policy mechanisms (i.e. child tax allowances, child tax credits, and child tax rebates) are sometimes not referred to as benefits in the literature. This thesis opts for an inclusive definition that encompasses these forms of support as well. The alternative would have been to use the term "financial support for parents", which can, however, be (mis)understood as also encompassing support that does not *complement* household income, such as maternity, paternity, and parental leave. As will be shown below, most developed countries offer more than one type of child benefits. Moreover, in addition to the employment and income conditions inherent to the some of the benefit types listed above, many countries (even in nominally "universal" benefit packages) impose additional conditions in terms of citizenship, residence, child age, birth order, and usage.

Child benefits are believed to have originated in the late 19th century in the form of modest financial support limited mostly to widows and orphans (Gauthier 1996: 193). Over the following several decades, they became larger and (slightly) more universal, especially in the interwar period. Since 1960, child benefits, just like the remaining two major areas of family policy (work leave and childcare), have seen an expansion. The size of child benefits rose considerably between 1960 and 2010 in developed countries (Daly & Ferragina 2018: 261). Importantly, the increasing prominence of family policies was unaffected by opposite (declining) trends in social spending more broadly from the 1970s onwards (Korpi & Palme 2003). In recent decades, the growth of child benefits has also been facilitated by the increasing embrace of the "social investment" paradigm, i.e. the recognition that family policies (including child benefits) do not

[1]This is an illustrative rather than a comprehensive list; for instance, child tax credits can be wasteable (applicable only to employed parents or guardians) or refundable (applicable to all parents or guardians). Neither is it a universally used list, as the same benefit type is sometimes referred to differently in different countries.

only fulfil valuable social functions in the present, but that they also improve the long-term physical and cognitive development of children, with a wide range of positive externalities for society, including but not limited to increased economic growth and decreased crime rates (Morgan 2011; Morel et al. 2012; Kuitto 2016; Hemerijck 2017; Pavolini & van Lancker 2018; Cooper & Stewart 2021).

However, the aggregate growth of child benefits over time obscures at least five other relevant trends relating to child benefits and the facilitation of their social functions, not all of which necessarily point in the same direction. The first such trend is fiscalisation, as 24 of 31 OECD countries provide at least one of the three tax-based child benefits listed above (Bradshaw & Nieuwenhuis 2020). Similar results have been obtained by Ferrarini et al. (2012), who have shown an increase in fiscalisation over time too, as the number of tax-based benefits in 18 developed countries rose from 12 in 1960 to 21 and 18 in 1980 and 2005, respectively. Thus, even though child benefits diverged from broader social spending trends from the 1970 onwards in terms of absolute size (as stated above), they also mirrored the broader fiscalisation of social protection outside of the family domain (Huber & Stephens 2001; Castles 2004; Swank 2005). This fiscalisation has sometimes constituted an example (especially when coupled with other trends such as the "redistribution paradox" discussed below) of "welfare chauvinism" (e.g. Brady & Finnigan 2014; Eick 2024): the reduction or withholding of benefits from specific (often disproportionately vulnerable) social and societal groups.

Second, while welfare states in developed countries have mostly converged in terms of benefit size, some stark cross-country differences persist. Ferrarini et al. (2012) have shown that cross-country disparities in benefit size declined from about 6% of the net average wage in 1960 to 1% in 2005. Interestingly, while this convergence has mostly occurred as a result of benefit increases (as evidenced above), it is also attributable to the stagnation or even decrease in benefit size in three of the four Nordic countries (Denmark, Finland, and Sweden). Thus, it appears that the convergence in child benefit size across Europe has not occurred along the lines of the so-called "Scandinisation" in family policy more broadly (Daly 2011), where the Nordic countries have led

the direction of the key policy trends. However, when it comes to low-income households specifically, Aerts et al. (2023) have found considerable differences in terms of the marginal increase in household income as a result of child benefits, which varies from 10% in Spain all the way to 50% in Sweden, with Nordic countries generally leading the way in terms of benefit levels.

Third, welfare states have converged in another important way: they increasingly provide means-tested rather than universal child benefits. Ferrarini et al. (2012) have shown that relative benefit size between low-income and middle-income households has reversed, as the latter enjoyed higher benefit size in 1960, while it is the former that received larger support as of 2005. On the one hand, this can be interpreted as a more optimal allocation of resources towards households that need them the most, thus avoiding the "Matthew effect" of providing support to already well-off families (e.g. Plavgo & Hemerijck 2020). However, a more detailed look at the data points to the opposite conclusion: more targeted support has led to smaller support on balance. Known as the "paradox of redistribution" (Korpi & Palme 1998), this phenomenon has been attributed to the decreased appetite for social spending among better-off households, who are excluded from targeted support and thus become less likely to approve of high(er) levels of support size. Thus, while welfare states focusing on targeting have avoided one problem associated with child benefits (the "Matthew effect"), they have contributed to an arguably more severe one (smaller size on balance), while also moving away from an egalitarian treatment of all children with an inalienable right to the same policy provisions (Daly 2015). In general, countries that combine universal and targeted child benefits appear to achieve the highest levels of poverty reduction (Salanauskaite & Verbist 2013; Van Mechelen & Bradshaw 2013; Popova 2016).

Fourth, the aggregate growth of child benefits and other family policies is undermined by the persistence of large intergenerational inequalities in social spending, as spending on the elderly has increased much more dramatically, even after accounting for the changing age structure of the population (Tepe & Vanhuysse 2010; Kotlikoff & Burns 2012). This gulf is inversely mirrored in the intergenerational flow of *private* transfers, which tend to move from the older to the younger layers of the population. These opposite trends show that the welfare state is heavily

relying on assistance from the private realm in supporting children, in contrast to singlehandedly ensuring the financial security of most people of old age (Gal et al. 2018). It is, thus, unsurprising that according to Birnbaum et al. (2017), who ranked the orientation of welfare states into four categories from most "pro-children" to most "pro-old", none of the 18 OECD countries studied were placed into the first category.

Fifth, while child benefits have grown over time, so have the costs of raising children. As societies develop, people tend to have fewer children and invest more in them, raising the estimated cost of raising two children to more than a third of household income on average (Corak et al. 2005; Menyhert et al. 2021). Yet, the size of most child benefits remains far below this figure: as of 2018, the average benefit size of welfare states in OECD countries stood at a mere 4,8% of household income (OECD Family Database 2023), thus replacing only about 1/7 of the actual childrearing costs incurred by households.

Taken together, these five accompanying trends in the provision of child benefits across time and space challenge the positive picture suggested by aggregate spending trends, while nonetheless stopping short of undermining it altogether. Child benefits have indeed become larger and, on balance, more suited to fulfilling the social functions typically associated with them, despite a series of persisting shortcomings.

Having provided an overview of the key trends and trade-offs around child benefits and their social functions, the second section of this background chapter turns to the pronatalist function of child benefits and family policy more broadly, which constitutes the core focus of this thesis. As elaborated in Paper 1 of the thesis, this function is conceived of as complementary in some ways with the social functions outlined so far but conflicting with them in other ways.

II Fertility-related incentivisation: theory and trends over time

Fertility-related incentivisation, defined as "intentional government discourse and/or action

directed at influencing the fertility rate of a given population in a specific direction" (Togman 2019: 3), has been said to be one of the oldest functions of family policy (Bahle 1994; Gauthier 1996; Saraceno 2022), which has nonetheless seen enormous variation over time in terms of its drivers and even its intended direction. While its direction and salience have varied considerably over time (partly in line with changes in demographic trends), fertility-related incentivisation can be broadly classified into five categories. This section briefly reviews these categories, starting from the most strongly pronatalist one and ending with the most strongly anti-natalist one.

The first such category is mercantilism, which as a broader socioeconomic theory (Heckscher & Shapiro 1935) continues to receive academic attention to this day (Magnusson 2005; Wallerstein 2011), albeit mostly in historical accounts of closed economies reliant on minimal imports. In the context of fertility, mercantilism has informed the thinking of numerous rulers between the 17th and the 19th century (Togman 2019: 22-27). However, most mercantilist pronatalist interventions occurred from the late 18th century onwards, when the age of regular population censuses and systematic monitoring of birth statistics began in Western Europe (Hoffmann 2000). This suggests that pronatalist interventions, in fact, preceded family policy. The fertility-oriented reading of mercantilism prescribed a high number of children, who are viewed as future soldiers crucial to the survival of the nation. In practice, mercantilism mostly assumed an illiberal form, as governments interested in stimulating fertility tended to punish childlessness rather than facilitating parenthood. In Ancient Rome, for instance, pronatalism manifested itself in the form of punitive measures against *non-parents* (rather than facilitatory measures for parents), as childless women were not allowed to wear precious metals or inherit the wealth of their husbands, while unmarried men had to pay a bachelor tax (ibid, 37).

In more contemporary history, while nonetheless driven by the same (allegedly) existential concerns about the nation and thus still belonging to the mercantilist category, the most notoriously illiberal incentivisation of fertility is associated with the aspiration towards an ethnically pure *Volksgemeinschaft* in Nazi Germany (e.g. Pendleton 1978). Pronatalism in Nazi Germany shared its coercive nature with other contemporary (interwar) forms of pronatalism in Italy, Spain, Portugal, France, and the Soviet Union, all of which resorted to severe abortion and

contraception restrictions (Hoffmann 2000). However, they also differed from Nazi Germany in that they refrained from "negative eugenics" (ibid), i.e. *anti*-natalist policies, most notably forced sterilisation, towards specific population groups. They also differed amongst each other in that the Soviet Union sought to ensure pronatalism would not be(come) incompatible with female employment, while West European interwar pronatalism was not guided by the latter consideration (Gauthier 1996). Yet, while refraining from "negative eugenics", Soviet pronatalism under Stalin exhibited a distinctly illiberal character completely dissociated from the well-being of children and families, as it even included the exemption of fathers from any financial or legal custodial responsibility (Nakachi 2022).

While mostly (albeit not fully) abandoning the military component of mercantilism, *neo*-mercantilism (the second school of thought reviewed here) maintains the nation-state focus of the mercantilist approach. However, it also differs from it by applying this focus inwardly to societal challenges associated with population decline and aging. While mercantilism prescribes more births regardless of the social context (arguing that nations will always need more soldiers), neo-mercantilism is rooted in the current demographic reality of increasingly old populations in developed countries. Thus, scholars working on population aging in the 20th century (e.g. Cutler et al. 1990) can be broadly placed in this school of thought. This view has become more influential as births have declined and life expectancies have risen over the past century, gradually replacing classical mercantilist tendencies, especially as national security concerns became less salient in the aftermath of the Second World War. It was advanced in a particularly compelling fashion in the work of Ansley Coale (1972), who demonstrated that even modest increases in fertility can keep countries with high life expectancies much younger than countries with equally high life expectancies yet low fertility.

This more nuanced understanding of pronatalism has coincided with the increasing use of more liberal policy measures. While contemporary examples of such measures will be reviewed in section V, examples of fertility incentivisation geared towards facilitating parenthood rather than punishing childlessness also include the Swedish pronatalism of the interwar years and the French post-WWII pronatalism (Gauthier 1996). Both examples are maintained to date in an

evolved form and have entailed a combination of cash-, leave-, and childcare-related incentives.

The French example has been described as a cross-ideological cause embraced by traditionalists and progressives alike, with "substantial and eloquent pronatalism [being] emphasised in the discourse of French feminism" (Pedersen 1993). The Swedish example is particularly interesting, as it is widely considered the pioneering example of facilitatory (non-coercive) pronatalism. Commonly attributable to the scholarship and advocacy of the Myrdal couple, summarised in their 1934 book "Crisis in the Population Question", Sweden introduced a wide range of pronatalist measures in the late 1930s, such as financial support for housing large families, prenatal care and subsidized delivery, a maternity bonus, marriage loans, and a 12-week maternity leave (Kramer 2014). At the same time, in stark contrast to (some of) the other interwar forms of pronatalism summarised earlier, it lifted the hitherto ban on contraception (ibid).

The third set of views on fertility is the laissez-faire school of thought (Togman 2019). Originally credited to Adam Smith's (2004) broader economic thinking in the mid-18th century, this school of thought has remained continuously relevant for the simple reason that it divorces its normative prescription from real-life fertility behaviour at any given time. While neo-mercantilism (as well as the two anti-natalist sets of prescriptions discussed below) is motivated by a specific demographic reality, laissez-faire scholars posit that fertility should not be regulated by governments, but rather by market incentives. While largely anachronistic in the more complex societies of today due to its reductive focus on the free market, this school of thought has served as an important counterweight to aggressively pronatalist prescriptions throughout history.

The fourth school of thought of relevance here is the traditional anti-natalist one. Famously established by Thomas Malthus (1988) in the late 18th century, this school of thought advocated for low birth rates amidst fears of overpopulation in developed countries and beyond. Its relevance today is mixed, as births in developed countries have long fallen below replacement fertility and population growth is expected to stop even at the global level towards the middle of the century (Whitby 2020). Historically, however, this school of thought has given rise to mass

panic about overpopulation, most notably in the United States (Ehrlich 1968), and continues to feature in academic works (Pimentel 2012) sceptical of projections of imminent fertility decline in developing countries.

Finally, the fifth school of thought is the modern anti-natalist one, which extends the concerns of the traditional anti-natalist school of thought to hitherto-less-salient concerns, such as the difficulties around educational investment in multiple children (Lee & Mason 2010) and environmental degradation (Cafaro & Crist 2012; McDonald et al. 2006). The fact that environmental degradation does not necessarily correlate with population size, as most environmental damage is posed by the most developed (rather than most populous) countries, has kept the size of this school of thought relatively marginal. However, its future strength will likely depend on the speed and success of the energy transition in developed and developing countries alike.

In summary, the five schools of thought summarised here provide some very specific sets of normative prescriptions regarding the desired direction of fertility rates. Given their normative nature, all five can be seen as permanently relevant; yet, most of them originated in specific historical and demographic circumstances and their explanatory power remains at least partly constrained by current and future socio-political and demographic trends. In the low-fertility, population-aging context of developed countries today, one would expect the second school of thought (neo-mercantilism) to carry the most explanatory power.

III Socio-political considerations around contemporary pronatalism: nationalism and re-traditionalisation in a post-materialist context

As documented in the first section of this background chapter, the growth and evolution of child benefits over time is attributable to a combination of structural and socio-political factors, ranging from the increasing size of welfare states to the growing recognition of the rights of children and the wide range of desirable social policy objectives fulfilled by this policy instrument. Having emerged as the most relevant type of fertility-related incentivisation to the demographic

realities in developed countries today, pronatalism is shaped by a similar mixture of structural and socio-political considerations. This section reviews and discusses the latter set of considerations, which, unlike the increasingly progressive norms underpinning contemporary trends in the size and design of child benefits, appear to take on a mostly national-conservative character.

Over the past few decades, nationalism has (re)assumed a major role in the politics of developed countries (Calhoun 2017; Fukuyama 2018; Whitehead et al. 2018). The possible causes of this trend, such as increasing economic inequality (within developed countries) and backlash against globalisation and increased immigration, have been the subject of extensive debate (e.g. Mudde 2017; Protzer & Summerville 2022). What is of interest here is that, while its causes remain debated, the rise of nationalism has challenged some classical scholarly assumptions about the "convergence of values" (Inglehart & Abramson 1999) and the "end of history" (Fukuyama 1991) around the world in the face of increasingly converging economic prosperity. Instead, it has become clear that, for most people, the nation-state remains the primary point of identification. Thus, the processes of nation-building, which had been considered largely finished (or had at least been attributed marginal importance for developed societies) by the end of the 20th century, have regained their relevance. Across developed countries, despite a generally high level of economic prosperity, one observes the persistence of nation-building as a form of "daily plebiscite" (Renan 1992; written in 1892): a process of ongoing (re)affirmation of a nation's individual representatives' sense of belonging to the national collective.

While some of the most famous recent examples of nationalist governments have been observed in the West, the failure to achieve a convergence of values towards liberalism (at the level of citizen attitudes) has been most conspicuous in Eastern Europe. Even though most East European countries have narrowed the economic gap with the world's richest countries over the past three decades, they have simultaneously moved further apart from what can broadly be described as

liberal "Western values" (World Values Survey 2023).[2] At the political level, these trends have taken the form of a proliferation of national-conservative ideologies by politicians and political parties, including – and perhaps especially – among those in government (Kornai 2015; Krastev 2016; Grzymala-Busse 2017).

The prefix "re-" in re-traditionalisation refers to the fact that this perceived shift in societal norms has occurred since the collapse of socialism in the late 1980s and early 1990s, partly due to the abandonment of atheism as a state doctrine and renewed embrace of religion in societies with high (pre-socialist) historical rates of religious belief (Merdjanova 2000). Thus, in addition to some of the more universal causes of the rise of nationalism in recent decades summarised above, re-traditionalisation might also be attributable to region-specific causes, i.e. the complex nation-building processes in countries that used to be part of one-party and multinational federations, often reluctantly, until only three decades ago. Within family policy, re- traditionalisation in the region has led to a widespread embrace of familialist policy models (Shiffman et al. 2002; Hantrais 2004; Javornik 2016; Ghodsee 2018).

Writing primarily on Eastern Europe, although through a universally applicable lens, Armitage (2021) proposes the notion of "demographic imaginaries" as a key manifestation – and further catalyst – of nationalism. She argues that the articulation of concerns about demographic change has proven particularly helpful to policymakers in their overall "construction of an imperilled imagined community" (ibid, 35). She further argues that "imagination and ideology, rather than purely technical considerations around demographic data, are central to the creation and construction of the "population crisis" in Eastern Europe" (ibid). She concludes – in line with Cook et al. 2022, Haskova et al. 2022, and Szalma et al. 2022, among others – that pronatalism has emerged as a notion that "couches changes in the size, age structure, geographic distribution, or ethnic composition of populations within the realm of national security and national stability" (Armitage 2021: 42).

[2]One particularly interesting child-related manifestation of (re)traditionalising social norms is the low rate of joint (maternal and paternal) parental custody in the region, which in all East European countries apart from Slovenia stands far below the European average, according to forthcoming research by Salin and Lindroos.

Furthermore, nationalism and (re-)traditionalisation have been becoming more prominent in (East) European countries not only relative to opposite (progressive) cultural norms, but also relative to the entire (left- and right-wing) economic dimension of ideological contestation, leading to the rise of a phenomenon termed post-materialism (Fukuyama 2018; Norris & Inglehart 2019; Häusermann 2020). For at least several decades, and most acutely over the past decade, the political science scholarship has been highlighting a reversal in the relative importance of the two dimensions of the "two-dimensional ideological axis": a commonly used analytical heuristic composed of a left-right economic dimension and a liberal-conservative cultural dimension. While the two dimensions have interacted in different ways across time and space, with parties positioning themselves on any of the four (2x2) resulting quadrants, the left-right economic dimension has traditionally been considered dominant, reflecting the core material interests of the electorate and dividing said electorate mostly along class and income lines. Post-materialism has, instead, referred to the prioritisation of cultural preoccupations by voters and politicians alike, with education emerging as a stronger predictor of voting intentions and outcomes than income or class (e.g. Dalton 2018; Evans & Langsaether 2021).

At the level of policy, including in the social and family realms, many of these trends have often been captured under the notion of "welfare chauvinism": the reduction or even wholesale withholding of welfare provisions from specific social or societal groups (due to selective understandings of national belonging and thus benefit "deservingness" (Brady & Finnigan 2014; Eick 2024). This trend has become particularly relevant in the current context of all-time-highest foreign-born populations in many developed countries. While some scholars have shown the fertility rate of immigrants to (gradually) converge with the average birth rate in their country of arrival (Tonnessen 2020), immigrants (especially first-generation) are usually more likely to occupy a lower socioeconomic status and have larger families than the general population (Stichnoth & Yeter 2016). There are also considerable differences in fertility behaviours between (domestic-born) ethnic and religious groups, often even within countries and at comparable levels of socioeconomic status (Rindfuss et al. 2016). These objectively different socioeconomic trends between native and immigrant populations are often accompanied by beliefs that immigrants are more likely to be unemployed and take advantage of the welfare state, which is

seen to have contributed to the previously discussed restrictions in child benefit provision through increasingly stringent employment conditions (Ferrarini et al. 2012; Ferragina 2022).

However, it would probably be too simplistic to fully attribute the (re)embrace of pronatalism, which will be detailed later in section V, to the rise of nationalism and re-traditionalisation. Further research is needed to establish whether (and in which countries and/or time periods) re-traditionalisation and nationalism drive – or are driven by – pronatalism. On the one hand, pronatalism might be a by-product of the much larger societal and political process of re-traditionalisation; on the other hand, re-traditionalisation might be occurring as a (perhaps not unintended but nonetheless secondary) consequence of pronatalist ideas that emerge from a different (or at least broader) set of considerations. In line with its overall structure, this section (and thesis) also allows for the possible influence of structural factors, which the following section turns to.

IV Structural considerations around contemporary pronatalism

This section outlines the structural considerations that have contributed to the (re)embrace of pronatalism in (some) contemporary European countries, with special emphasis on Eastern Europe, whose population decline and aging is not only driven by fertility levels below the replacement rate but also by net emigration.

As discussed in the (second) section on fertility-related incentivisation earlier, the emergence of a pronatalist orientation does not require a specific demographic basis, as mercantilist pronatalism persisted for centuries mostly during times of population *growth*, albeit more as a declarative political orientation rather than a policy course. An argument can be made, however, for placing contemporary pronatalism under the "neo-mercantilist" version, where pronatalism occurs in the context of population decline and aging, i.e. an overall decrease of the size of the population and a growing gap between the share of elderly and working-age individuals in the population.

Population decline and aging have indeed been acutely observed in Europe over the past three

decades (Frejka & Gietel-Basten 2016; Sobotka 2017), with fertility rates well below the replacement level of 2,1 children per woman and sometimes even in the "lowest-low" category of 1,3 children per woman or less. In Southern and particularly Eastern Europe, low fertility has been leading to massive population shrinking, as illustrated by the fact that the only five countries in the world (Bulgaria, Serbia, Latvia, Lithuania, and Ukraine) that are projected to lose 20% or more of their population by 2050 according to the United Nations are located in Eastern Europe (United Nations Population Prospects 2022).

The demographic literature abounds with evidence of the socioeconomic risks associated with population aging and decline of such magnitude and speed. These demographic trends have been linked to lower economic growth, more unstable pension systems, overburdened healthcare systems, and decreased innovation (Tepe & Vanhuysse 2009; Breyer et al. 2010; Mason et al. 2011; Karahan et al. 2019; Vlandas 2023). Economic growth is a function of the amount of labour and capital available in an economy and their productivity; all else being equal, less labour leads to lower growth. Moreover, sustainability of pension systems is, of course, heavily dependent on the financing mechanisms of the pension system in question, but, all else being equal, high old-age dependency ratios (of elderly versus working-age individuals) constitute a cause for concern. Currently, East European populations are *younger* than West European ones, as births generally began to decrease more recently in these countries, but eight of the ten post-socialist member states of the EU (except Hungary and Slovenia) are projected to have a higher old-age dependency ratio than the EU median by 2100 (Eurostat 2020). Moreover, population aging tends to result in a rapidly growing share of chronically ill (and thus, on average, costlier) patients for healthcare systems.

It is thus unsurprising that a worldwide expert survey of demographers (van Dalen & Henkens 2020) revealed that a majority of respondents favoured pronatalist policies in countries with a fertility rate of 1,4 or lower. The socioeconomic risks associated with population aging and decline have also penetrated the political theory and family policy fields of scholarship through the notion of children as "public goods". For several decades, scholars have been proposing the

notion that "childrearing costs must be shared between taxpayers and the family in a way that reflects the fact that childrearing generates human capital from which all citizens benefit, regardless of whether they have children themselves" (Folbre 1994: 88; see also George 1993; Engster 2007; Folbre 2008; Rose 2016; Bou-Habib & Olsaretti 2021).

In fact, the "public goods" notion can be counterposed to "re-traditionalisation", even though the two are obviously not mutually exclusive. As Bou-Habib and Olsaretti (2021: 7) put it, "because the basis for [society to] shar[e] child-rearing costs with parents is the contribution parents make through child-rearing, rather than parents' [self-]interests in parenting, cost-sharing does not presume any controversial judgement that parenting is an intrinsic part of a good life". This theoretical argument links children to John Stuart Mill's notion of "social primary goods" (1999), or "benefits which all, if not most, members of society can reasonably be presumed to want" (2021: 7). In other words, in this view, the palpable socioeconomic downsides to low fertility constitute a sufficient justification for government-funded pronatalism in and of itself, i.e. regardless of whether pronatalist policymakers may or may not *also* be driven by any additional socio-political considerations, such as the nationalist and re-traditionalist tendencies discussed earlier.

However, while demographic and socioeconomic trends and implications must not be dismissed outright, there are several reasons why they should probably not be viewed as primary determinants of contemporary pronatalism. First, it has been shown that the embrace of pronatalism does not always coincide with – or even immediately follow – fertility declines (e.g. Seeleib-Kaiser & Toivonen 2011). Across Europe, fertility rates have been declining for decades; declines towards the end of the 20th century were generally even steeper than recent ones (Sobotka 2004). Yet, pronatalism was largely dormant on the continent – apart from classical examples such as Sweden and France – until it was embraced by various East European countries, beginning with Russia's (re)embrace of it in 2007. Second, while all European countries have sub-replacement fertility levels, not all are (equally) pronatalist. In fact, some do not identify as pronatalist even at a declarative level, let alone in terms of policy: only 58% of European

governments expressed a pronatalist orientation in 2021 (United Nations Population Prospects 2022).

Third, even at a normative level, the relationship between population decline and aging on the one hand and pronatalist policy on the other might not be as clear-cut as presented above. Despite the expected long-term socioeconomic benefits of pronatalism discussed earlier, producing more children increases the number of dependent citizens in the population and exacerbates most of the relevant socioeconomic imbalances *in the short run*. Even in the long run, the societal costs associated with a higher number of children (mainly in terms of infrastructure and education), let alone the environmental toll of large populations (Cafaro & Crist 2012), might not necessarily be outweighed by said children's future contribution to the economy and society as adults (O'Sullivan 2020). Finally, the effects of childbearing on individual wellbeing are far from universally positive, with parents usually reporting lower levels of wellbeing than non-parents (Kohler et al. 2004), albeit with strong variation across countries, mainly due to differences in work-life reconciliation policies (Glass et al. 2016).

Yet, even if the link between demographic change and pronatalism is highly contestable (both empirically and normatively), it would probably be a mistake to view pronatalism as a set of purely socio-political projects by conservative policymakers completely divorced from demographic realities and the associated socioeconomic challenges. In fact, Bartha et al. (2020) have proposed the notion of "ideal-type populist policymaking" with regard to Hungarian pronatalism. Through a discourse analysis of the speeches of Prime Minister Viktor Orban, these authors found that the discursive representation of pronatalism could be better described as a catch-all glorification of a wide range of alleged benefits of higher births, including socioeconomic ones. Similar findings have been produced with regard to Poland (e.g. Dryjanska 2021), where pronatalism was introduced by a socially conservative yet economically left-wing government, with the reduction of child poverty featuring as a (secondary yet non-negligible) justification of the policy. Thus, this thesis conceives of demographic trends as an important although usually not decisive factor for the embrace of pronatalist policy and/or politics.

Finally, population aging tends to constrain public spending not only through the obvious increase in the share of inactive and economically dependent population, but also by creating broader disincentives to economic growth. Vlandas (2023) has argued that developed countries are converging around a stagnating political economy that increasingly prioritises the socioeconomic needs of the elderly at the expense of future economic performance. Due to their increasing population share but also owing to their generally higher electoral turnout, the elderly exercise considerable (and even disproportionate) political influence, prompting policymakers to prioritise policies oriented towards stronger consumption rather than investment. In this view, European "gerontonomias" are becoming increasingly poorly equipped to grow and innovate, exacerbating public spending constraints (ibid), including in the realm of family policy.

It is important to highlight that such constraints are generally common to the entire continent, even though (most) West European populations are currently older than (most) East European populations. This is because the latter often contend with a disproportionate number of "abnormal pensioners" (Vanhuysse 2006), given the peculiar nature of East European post-socialist transitions. In the early 1990s, the collapse of socialism necessitated an abrupt transition to a market economy, which made many jobs and entire sectors of the socialist economy redundant (Orenstein 2008; Verhoeven et al. 2009). Due to their disproportionately obsolete skills and (perceived) lower ability to retrain, old workers were even more likely than the general population to be laid off. Most governments in the region found it preferable to offer these workers large early retirement packages than to either continue to subsidise inefficient sectors of the economy or fire the workers and risk severe political backlash. Overall, the entrenched political coalitions between pensioners and governments and the resulting spending constraints across Europe discussed above are likely to continue to limit the financial resources for – and likelihood of – pursuing costlier family policies. It remains to be seen whether these trends will lead to curbed or increasingly targeted family policy spending in general, or whether their impact might differ based on the policy instrument in question.

V Child benefits in contemporary Europe: an overview of key pronatalist cases

Having discussed at length the key theoretical debates and empirical trends regarding the historical evolution and drivers of family policies, child benefits, and pronatalism, this section now turns to an overview of the policy design of some key examples of explicitly pronatalist child benefits in Europe today (Table 0.1). This overview serves an illustrative purpose and does not constitute an exhaustive list. The countries included have emerged as particularly prominent in the relevant literature (e.g. Gerovska-Mitev 2019; Speder 2016; Sorvachev & Yakovlev 2020; Wilk 2020; Cook et al. 2022; Inglot et al. 2022; Nikitovic 2022; De Giorgi), but not all are studied in (all four empirical papers in) the thesis. They exhibit several points of continuity and discontinuity with the historical cases of pronatalism previously discussed in the second section, both in terms of their design features as well as in terms of the broader socioeconomic and political context around them.

Table 0.1: Overview of the key contemporary cases of pronatalist child benefits in Europe[3]

Country	Form	Duration[4]	Eligibility (by child age)	Parity-dependent	Means-tested
Belarus	Direct cash payment	2013 – Present	0-3 years old	Yes (larger for the 2nd child and above)	No
Hungary	Tax credit; direct cash payment	N/A[5]	0-18 years old	Yes (largest for the 3rd child)	No
Italy	Direct cash payment	2022-present[6]	0-21 years old	No	Partly
North Macedonia	Direct cash payment	2009 – 2018[7]	0-10 years old	Yes (3rd child only)	No
Poland	Direct cash payment	2016 – Present	0-18 years old	Yes (largest for the 3rd child)[8]	No
Serbia	Direct cash payment; childbirth bonus	2018 – Present	0-10 years old	Yes (larger for the 3rd and 4th child)	No
Russia	Earmarked cash payment	2007-Present	0-3 years old	Yes (only for the 1st and 2nd child)	No

First, in terms of the five theoretical categories (Togman 2019) outlined in the second section, these contemporary cases bear the strongest similarities to neo-mercantilist pronatalism. However, it would be incorrect to assume complete discontinuity between contemporary pronatalism and its classical mercantilist predecessor. An obvious similarity lies in the broader political context: while the likelihood of war in developed countries tends to be low, we still live

[3]This is not a comprehensive overview of (recent and/or ongoing) cases of pronatalist policy in Europe; as stated earlier, 58% of European countries self-declare as pronatalist but they have translated their self-declaration into policy to different extents (if at all) and in different ways. Moreover, even some countries which have adopted extensive pronatalist child benefits are excluded from the table due to the short-lived (Ukraine) and highly localised (Croatia) nature of their policies, which make them difficult to classify and study in a comparative perspective.

[4]This column outlines the year of introduction and (if applicable) discontinuation of the largest (and explicitly pronatalist) component(s) of the support package in each country. The remaining three columns refer to the same support component(s), which constitute(s) the bulk – but not the entirety – of the support package of the country.

[5]Hungary has a long pronatalist tradition, where pronatalist policies (including but not limited to child benefits) have been introduced, expanded, and discontinued at various time points.

[6]Given the timing of its adoption, Italy's pronatalist policy is not factored into the benefit size values for the country in the empirical components of this thesis.

[7]North Macedonia's pronatalist financial support package was discontinued for new recipients in 2018 but is still issued to parents who had begun receiving it before 2018.

[8]In 2019, Poland expanded its pronatalist support to include all children regardless of birth order. Previously, eligibility was limited to parents with two or more children, while those with one child were subject to a means test. Russia made a similar birth-order eligibility change (to include first children) in 2020.

in the world of nation-states within which mercantilism originally took shape. As will be demonstrated in subsequent paragraphs, countries with a limited tradition of independent statehood and/or recent history of violent conflict continue to struggle with existential anxieties, which can easily imbue pronatalism with a patriotic component akin to the mercantilist tradition, especially amidst renewed geopolitical instability in the face of the war in Ukraine.

That being said, contemporary pronatalism ought to be viewed as more different than similar to classical mercantilism on balance. As stated earlier, the most notable difference is that, unlike mercantilism, it coincides with a specific demographic reality: population aging. On the one hand, the causal relationship between population aging and pronatalist policy responses is weak. As demonstrated most persuasively by Seeleib-Kaiser and Toivonen (2011), the embrace of pronatalism in government discourses shows no clear correlation to demographic trends. However, most pronatalist policy interventions, be it in the early and mid-20th century in Western Europe, or in more recent decades in Eastern Europe, have been introduced in what can broadly be described as a low-fertility, below-replacement context of less than 2,1 children per woman. While population aging has influenced some of the "neomercantilist" cases discussed earlier (interwar and post-war Sweden as well as post-war France), the scale and speed of demographic change has never been as strong as in recent decades, tying contemporary pronatalism particularly closely to the demographic realities in which it has been operating.

Second, in contrast to some of their own pronatalist precursors during history (Kligman 1998; Inglot et al. 2022; Nakachi 2022), these cases have emerged in conditions of (at least nominal) democracy. An even more important – albeit not universal – point of contrast with the distinctly illiberal pronatalism of the likes of Stalin (and, from the 1970s onwards, Ceausescu in Romania) is that four of the seven countries (Russia, Belarus, North Macedonia, and Serbia) have had relatively liberal abortion policies, both at the time of introducing their pronatalist child benefits and at the time of writing. Even Hungary, Italy, and Poland, which, in line with the re-traditionalisation paradigm, have recently tightened abortion, are (much) less restrictive in this regard than the two historical cases mentioned above. This signals yet again that nationalism and re-traditionalisation, while crucial, do not tell the entire story of contemporary pronatalism. Yet,

at the same time, these seven cases also stand out from the *liberal* historical instances, as in all seven countries, the benefits have been introduced by conservative governments, while no such pattern applied to the (post-war) French and (interwar and post-war) Swedish cases.

The fourth and arguably crucial point of comparison to the historical cases is that the sheer range of political and policy embraces of pronatalism today has led to much higher specificity and targeting in terms of policy design. A key example is the increasing focus on specific child ages and birth orders, which will be considered in more detail in the following few paragraphs.

The two clear variation patterns in Table 0.1 that are not only common to (most of) the seven cases below but are also somewhat distinctive from other pronatalist case studies throughout history refer to the uneven variation in the benefits by child age and birth order (parity). In four of the seven cases, the largest (explicitly pronatalist) child benefit is limited to younger children (up to 3 years old in Belarus and Russia and up to 10 years old in North Macedonia and Serbia). Even in Hungary (but not in Poland and Italy), where most benefits are available throughout childhood, their size is bigger for younger children. Moreover, in six of the seven cases, the benefits are larger for some birth orders than others. In five of them (except Russia and Italy), these are later-order children (second and beyond in Belarus, third in North Macedonia, Hungary, and Poland, and third and fourth in Serbia). While Russia appears to be moving in the opposite direction (first and second children), it is worth mentioning that even there the support was only available to second children until 2020.

By contrast, no major benefit discrepancies by age were observed in post-WWII France and Sweden. While the birth order bias has also been present in the French case (Ekert-Jaffe 1994), where the tax credit has been larger for third children (and remains so to this day), the extent of the birth order bias and especially the overall size of the benefits are rather unique to post-socialist Eastern Europe. This is most evident in the cases of Serbia and Poland. Due to the economies of scale created between multiple children, later-order children are known to cost less in most countries (Corak et al. 2005; Browning et al. 2006; Lino et al. 2017; Pezer 2022). This means that the exorbitant benefit size for third and fourth children in these countries (currently at about EUR 150 monthly per child in each country) might even exceed the marginal increases

in childrearing costs attributable to these children, especially in rural areas with lower living expenses.

Several potential reasons can be proposed for these biases. First, six of these seven countries, especially Serbia and Belarus, remain poorer than the European average. Moreover, partly due to the dependent market economy mechanisms discussed earlier, their welfare states are *even* smaller than one would expect from countries at comparable GDP levels. While all Central European welfare states apart from Poland and, in some years, Hungary, have lagged behind Western Europe in terms of overall social (including family) spending, the discrepancy is even wider in the Balkans. Despite some gradual yet slight increases since 2005, social spending in non-EU member states in the Balkans stood at about half (15% of GDP) of the EU level (27% of GDP) (Zarkovic et al. 2022). Thus, they can hardly afford providing large benefit packages to all children in their populations. If they must limit the benefits to some children, it seems logical to prioritise higher-order children, who are less numerous (and thus more affordable for the welfare state in aggregate terms).

Governments might also be operating under the assumption that most people will have one or two children regardless of policy. This assumption can be corroborated not only by the current fertility rates of more than one child per woman in all seven countries but also by the persistence of fertility ideals of two or more children per woman across Europe (e.g. Sobotka & Beaujouan 2014). This suggests that people *migh*t have (at least) two children if the policy conditions are right, i.e., that a pronatalist policy intervention geared towards higher birth orders might be worthwhile.

The second – and more cynical – interpretation would be to attribute the birth order bias to the political objectives of conservative pronatalist governments. If less educated voters are both more likely to have more children (e.g. Musick et al. 2009) *and* to vote for conservative parties (e.g. Gallego 2010), then conservative governments have a clear incentive to target such demographic groups with policy, including with pronatalist child benefits. Moreover, another demographic group commonly associated with conservative voting and large family sizes is rural voters (e.g. Marcinkiewicz 2018), who are disproportionately advantaged by the high benefit size

discussed above due to their lower living costs. It is thus unsurprising that, at least in the case of Poland, the now-former pronatalist conservative government seems to have derived considerable electoral benefits from its pronatalist child benefits, with Gromadzki et al. (2022) estimating a vote boost of around two percentage points.

Having provided an overview of some notable examples of contemporary pronatalist child benefits in Europe, this background chapter concludes by presenting the theoretical framework of the thesis, which draws on the abundant material from the family policy, social policy, demography, and political science literature outlined throughout this section, thus providing the foundation for the empirical components of the thesis.

VI: Overview of the theoretical framework of the thesis

Figure 0.1 below presents the overarching theoretical framework of the thesis. In line with the material presented in this chapter, the thesis engages with both the socio-political and structural dimensions of child benefits and pronatalism in various ways. This dual analytical focus reflects the non-deterministic understanding of these two research subjects, as the thesis neither assumes that child benefits are (only) driven by pronatalist considerations nor that pronatalism (is) necessarily (meant to) fulfil(s) its stated objective of increasing fertility.

As documented in detail earlier in this chapter, family policy in general and child benefits in particular have seen considerable growth in both size and complexity (of design and objectives) in Europe over time, especially over the past several decades. During the latter period, much of the continent has also seen a resurgence in nationalism and re-traditionalisation at both the political and societal level, as well as a broader prioritisation (by politicians and voters alike) of cultural over economic concerns. Simultaneously, a growing number of European countries have been declaring pronatalist political orientations, with many of them adopting pronatalist policies, primarily through child benefits as a policy instrument. The interaction between these trends and their implications through the size, design and drivers of child benefits, as well as in the potential pronatalist discourses around them, constitutes a key theoretical and analytical focus in the first

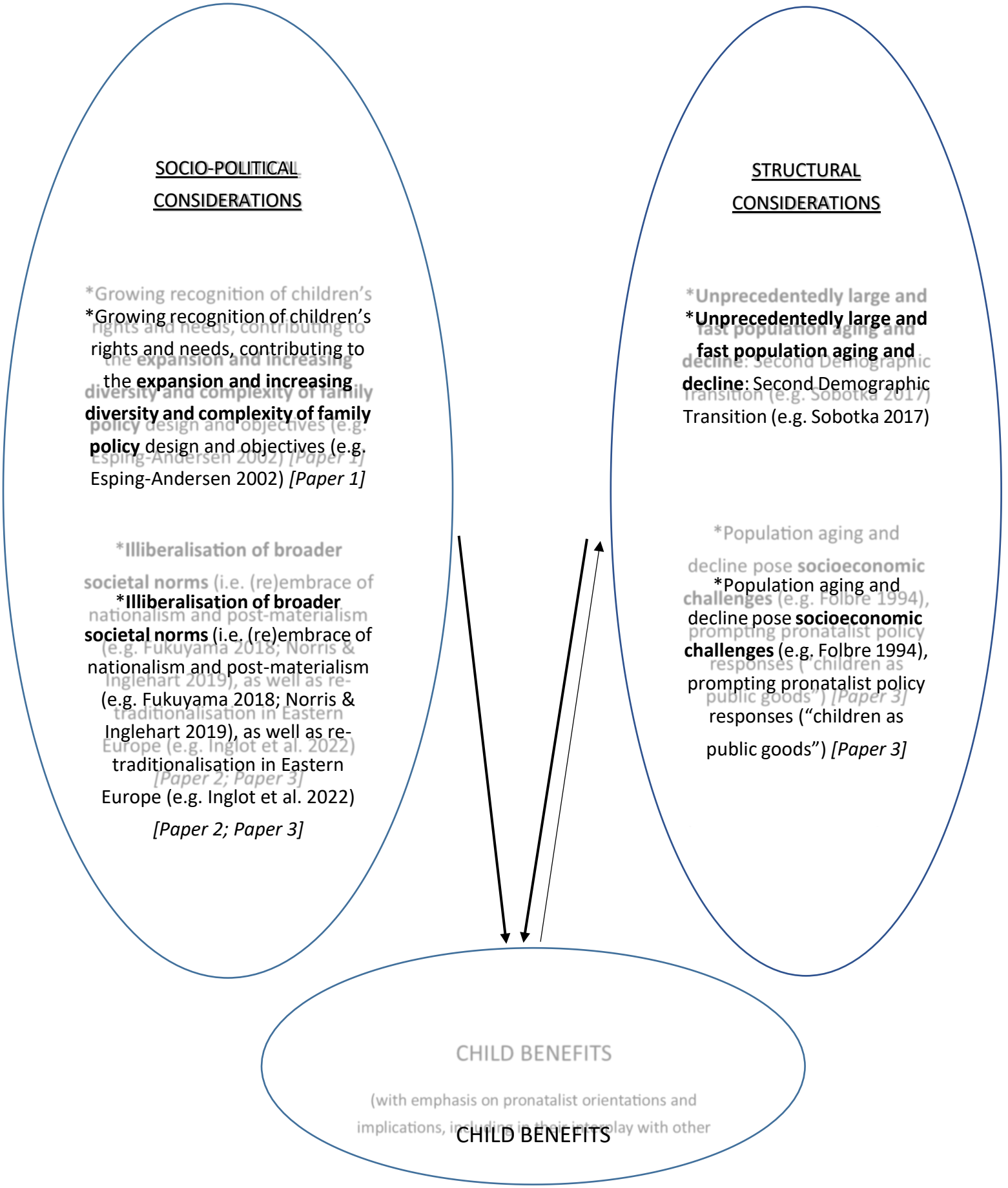
three empirical papers of the thesis.

At the same time, the thesis is acutely aware of the objective demographic trends and implications observed over the same period. As documented earlier in this chapter, below-replacement fertility and the twin phenomena of population decline and aging pose a wide range of socioeconomic challenges to European countries, creating the space for potential policy interventions targeted at increasing birth rates. Such pronatalist policies, like all family policies, are constrained by spending capabilities, which are paradoxically depleted by the same aforementioned demographic phenomena to which pronatalism is responding. These structural considerations complement the socio-political considerations (re)summarised in the previous paragraph (through their interaction in the size, design and drivers of child benefits, as well as in the potential pronatalist discourses around them) in laying the theoretical and analytical foundation for the first three empirical papers in this thesis.

Moreover, the bidirectional relationship between population trends and child benefits referenced in the previous paragraph informs the fourth and last empirical paper in the thesis. While the implications of demographic trends for child benefit size and design are addressed by Paper 3, any examination of contemporary child benefits and pronatalism would be incomplete without an assessment of the actual implications of the former for fertility rates, with such an assessment being conducted in Paper 4 (hence the reverse arrow from child benefits to the structural considerations in Figure 0.1 below)[9].

[9]Figure 0.1 does not encompass the complete theoretical foundation(s) of this thesis, as the four empirical papers independently (and secondarily) engage with several additional strands of the family policy, social policy, demographic, political science, and sociological literature, which are appropriately discussed in the respective theoretical sections of the individual papers.

Figure 0.1: Overarching theoretical framework of the thesis



(with emphasis on pronatalist orientations and
implications, including[40] in their interplay with other

VII: Overview of the analytical strategy of the thesis

The titles of the four empirical papers in this thesis are listed again below, followed by the two overarching research questions they seek to respond to:

- Paper 1: Variation by Child Age, Birth Order, and Household Income: Policy Orientations Reflected in the Design of Child Benefits in Europe
- Paper 2: From a Demographic Trend to a Policy Problem: The Framing of Low Fertility by Pronatalist Governments in North Macedonia and Serbia
- Paper 3: Child Benefit Size and Design in Europe: Macroeconomic, Sociocultural, and Political Factors
- Paper 4: Child Benefits and Fertility Behaviour: The Relationship between Benefit Size and Design and Fertility Rates in Europe

Overarching research question #1: *How does fertility incentivisation interact with other policy considerations around the size and design of child benefits in European countries?*

Overarching research question #2: *What underlying socio-political and demographic implications are posed by the main trends in child benefit size and design in European countries at a time of increasingly common pronatalist policy and discourse, and for whom?*

The methodological approaches used to answer these questions were previously stated in the thesis abstract and are elaborated in more detail in the individual empirical papers. It is, however, appropriate here to discuss some key epistemological choices in the thesis and the ways in which they – as well as the selected data and country cases – relate to one another across the four empirical papers. Overall, the thesis follows a mixed-methods research design comprising three quantitative and one qualitative study. This methodological decision reflects the interdisciplinary epistemological orientation of the thesis, in line with its dual foundation in socio-political and structural considerations around child benefits and pronatalism documented in this chapter. In line with the palpable nature of its two overarching research subjects (the size and design of child benefits as a policy instrument, and fertility incentivisation as a policy orientation and objective),

the bulk of the analytical strategy in this thesis relies on quantitative methods, thus following a positivist epistemology. However, given the prominent role of socio-political considerations in its theoretical framework, the thesis adopts a qualitative method (and follows a constructivist epistemology) in Paper 2, as the pronatalist orientations of child benefits referenced in the thesis title could not be studied in a comprehensive fashion without capturing their discursive articulation(s). Importantly, the thesis does not depart from its interest in socio-political considerations even in its quantitative and positivist empirical papers, as these play an important role in Paper 1 and (especially) Paper 3, whose individual theoretical and discussion sections appropriately engage with a mixture of quantitative, qualitative, and mixed-methods literature, albeit with a primary reliance on quantitative scholarship.

In line with its primarily quantitative methodology, and with the goal of maximising the generalisability of its findings and generating credible estimates of the relationships of interest, the thesis primarily adopts a large-N approach drawing on 26 countries across 20 years in two of its three quantitative papers (Paper 3 and Paper 4), with Paper 1 zooming into 2006 and 2021 and operating with the same 26 countries, plus an additional three countries for 2021. The country selection encompasses most of the European continent, thus including a wide range of welfare states and diverse political, economic, demographic, social, and geographical contexts. The only exception is Paper 2, which adopts a small-N focus on North Macedonia and Serbia, whose explicitly pronatalist, relatively traditional, and less-than-democratic contexts, coupled with key differences in terms of interethnic relations and party competition, are well-suited to the comparative research objectives elaborated in the paper.

The data was collected from national and international databases, including the dedicated access-upon-request Online Platform of the OECD TaxBen simulator for the child benefit data used across the three quantitative papers, as well as official government and parliamentary transcripts for Paper 2. For the aforementioned reasons of maximizing generalisability across time and space, as well as due to various data constraints, the thesis operates with aggregate-level data across all three quantitative papers. However, in line with the overarching interest of

the thesis in several types of *variation* in child benefit size, the aforementioned child benefit data were obtained for three child ages, four birth orders, and two household income levels in a micro-simulated fashion. Thus, the thesis has sought to limit its vulnerability to the common "dependent variable problem" in the social policy literature (Green-Pedersen 2004; Birnbaum et al. 2017) by going beyond overall spending data, while nonetheless maintaining a geographically and temporally large sample size, albeit potentially at the expense of the superior statistical sophistication and disaggregation by some important socioeconomic parameters, which would have been enabled by the use of micro-level data. The full list of methods and data sources used in the thesis was provided in the thesis outline earlier and will be discussed in more detail in the individual papers.

Finally, in line with its two overarching research questions, this thesis seeks to offer two sets of overarching contributions, as well as several additional standalone contributions through the individual empirical papers. The first set of overarching contributions refers to the ways in which fertility incentivisation complements, competes with, and conflicts with other policy considerations around the size and design of child benefits in European countries. It engages with some of the vibrant and ongoing debates in the family and social policy literature around the interaction of different policy objectives, including (but not solely) in terms of core notions such as the relative merits of policy targeting and universality, the types of needs addressed by family and social policies and the types of families for which said needs are (attempted to be) addressed.

The second set of overarching contributions of this thesis refers to the underlying socio-political implications of – and affected entities from – some of the main trends in the size and design of child benefits, at a time of increasingly common pronatalist policy and discourse. This set of contributions interacts with several prominent debates in the political science, demographic, and sociological literature around the implications posed by child benefits and pronatalism at a time of important demographic change(s) in an increasingly national-conservative socio-political context, cautioning against a deterministic understanding of – and approach to – pronatalism.

Taken together, these two sets of overarching thesis contributions are intended to help inform future research around the two core subjects of interest in this thesis (child benefits and pronatalism), both of which are likely to continue to hold considerable and far-reaching implications for governments, families, and societies for the foreseeable future.

Bibliography

Aaerts, E., Marx, I., & Parolin, Z. (2023). Minimum income support for families with children in Europe and the US: Where does it stand? Working Paper No. 22/03. University of Antwerp.

Armitage, A. (2021). From demographic security to demographic resilience: Towards an anthropology of multilateral policymaking in eastern Europe. *Ph.D. thesis*, Geneva Graduate Institute.

Azmat, G. & González, L. (2010). Targeting fertility and female participation through the income tax. *Labour Economics*, 17(3), 487-502.

Bahle, T. (1994). *Familienpolitik in Westeuropa: Ursprünge und Wandel im internationalen Vergleich*. Frankfurt: Campus.

Bahle, T. (2023). Family Policies in Long-Term Perspective. In *Oxford Handbook of Family Policy Over the Life Course*.

Becker, G. (1960). *Demographic and Economic Change in Developed Countries*. National Bureau of Economic Research.

Becker, G. (1991). *A Treatise on the Family*. Harvard University Press.

Bertram, H. (2018). Money, time, and infrastructure as elements of a new German family policy. In B. Holthus & H. Bertram (Eds.), *Parental Well-Being: Satisfaction with Work, Family Life, and Family Policy in Germany and Japan* (pp. 253-263). Munich: Ludicum.

Birnbaum, S., Ferrarini, T., Nelson, K. & Palme, J. (2017). *The Generational Welfare Contract: Justice, Institutions and Outcomes*. Cheltenham, UK: Edward Elgar.

Blome, A. (2016). Normative beliefs, party competition, and work-family policy reforms in Germany and Italy. *Comparative Politics*, 48(4), 479-503.

Boccuzzo, G., Caltabiano, M., Dalla Zuanna, G. & Loghi, M. (2008). The impact of the bonus at birth on reproductive behaviour in a lowest-low fertility context: Friuli-Venezia Giulia (Italy), 1989-2005. *Vienna Yearbook of Population Research*, 6, 125-147.

Bou-Habib, P. & Olsaretti, S. (2021). Children or migrants as public goods? *Working Paper*. Retrieved from http://hdl.handle.net/10230/47334.

Bou-Habib, P. (2019). The case for replacement migration. *Journal of Political Philosophy*, 27, 67-87.

Bradshaw, J. & Nieuwenhuis, R. (2020). Poverty and the family in Europe. In N. F. Schneider & M. Kreyenfeld (Eds.), *Research Handbook on the Sociology of the Family*. Elgar.

Brady, D., & Finnigan, R. (2014). Does immigration undermine public support for social policy?. *American sociological review*, *79*(1), 17-42.

Brandolini, A. (2007). Measurement of income distribution in supranational entities: The case of the European Union. In S. P. Jenkins & J. Micklewright (Eds.), *Inequality and Poverty Re-Examined* (pp. 62-83). Oxford: Oxford University Press.

Brewer, M., Ratcliffe, A. & Smith, S. (2012). Does welfare reform affect fertility? Evidence from the UK. *Journal of Population Economics*, 25(1), 245-266.

Cafaro, P., & Crist, E. (2012). *Life on the Brink: Environmentalists Confront Overpopulation*. Athens: University of Georgia Press.

Castles, F. G. (2004). *The Future of the Welfare State: Crisis Myths and Crisis Realities*. Oxford: Oxford University Press.

Cerami, A. & Vanhuysse, P. (Eds.). (2009). *Post-Communist Welfare Pathways: Theorizing Social Policy Transformations in Central and Eastern Europe*. London: Palgrave Macmillan.

Chesnais, J. (1992). *The Demographic Transition: Stages, Patterns, and Economic Implications*. Oxford University Press.

Chesnais, J.-C. (1987). Quand un peuple en devient deux: Une Allemagne et l'autre. *Population et Sociétés*, 209, 1-4.

Cohen, A., Dehejia, R. & Romanov, D. (2013). Financial incentives and fertility. *Review of Economics and Statistics*, 95(1), 1-20.

Cooper, K. & Stewart, K. (2021). Does Household Income Affect Children's Outcomes? A Systematic Review of the Evidence. *Child Ind Res* **14**, 981–1005.

Daly, M. (2015). Child-related financial transfers and early childhood education and care. *Discussion Paper*. UN Women.

Daly, M. (2019). Children and their rights and entitlements in EU welfare states for liberty. *Journal of Social Policy*, 1-18.

Daly, M. & Ferragina, E. (2018). Family policy in high-income countries: Five decades of development. *Journal of European Social Policy*, 28(3), 255-270.

De Giorgi, E., Cavalieri, A., & Feo, F. (2023). From Opposition Leader to Prime Minister: Giorgia Meloni and Women's Issues in the Italian Radical Right. *Politics and Governance*, *11*(1), 108-118.

Drago, R., Sawyer, K., Shreffler, K. M., Warren, D., & Wooden, M. (2011). Did Australia's baby bonus increase fertility intentions and births? *Population Research and Policy Review*, 30(3), 381-397.

Dumont, G.-F. & Descroix, P. (1988). La spécificité du comportement démographique de la France: Mesure de la surfécondité relative de la France par rapport aux autres pays industriels à faible fécondité précoce de 1963 à 1986. *Histoire, Economie et Société*, 7(3), 419-432.

Eick, G. M. (2024). *Welfare chauvinism in Europe: How education, economy and culture shape public attitudes*. Edward Elgar Publishing.

Engster, D. (2008). *The Heart of Justice*. Oxford: Oxford University Press.

Esping-Andersen, G. (1985). *Politics Against Markets*. Princeton, NJ: Princeton University Press.

Esping-Andersen, G. (2002). *Why We Need a New Welfare State*. Oxford: Oxford University Press.

Esping-Andersen, G. & Billari, F. (2015). Re-theorizing family demographics. *Population and Development Review*, 41(1), 1-31.

Evans, G., & Langsæther, P. E. (2021). The realignment of class politics and class voting. In *Oxford Research Encyclopedia of Politics* (pp. 1-24). Oxford University Press.

Ferragina, E. (2022). Welfare state change as a double movement: Four decades of retrenchment and expansion in compensatory and employment-oriented policies across 21 high-income countries. *Journal of Social Policy and Administration*, 56 (5), 705-725.

Ferragina, E. & Seeleib-Kaiser, M. (2015). Determinants of a Silent (R)evolution: Understanding the Expansion of Family Policy in Rich OECD Countries, *Social Politics: International Studies in Gender, State & Society*, 22 (1), 1–37.

Ferrarini, T., Nelson, K. & Höög, H. (2012). The fiscalization of child benefits in OECD countries. *GINI Discussion Paper*, 49. Amsterdam: AIOS (Institute for Advanced Labour Studies).

Fleckenstein, T. & Mohun Himmelweit, S. (2022). The politics of ideas in family policy: Parties, electoral competition, and shifting norms. In *Oxford Handbook of Family Policy Over the Life Course*.

Fleckenstein, T. & Lee, S. (2014). The politics of postindustrial social policy: Family policy reforms in Britain, Germany, South Korea, and Sweden. *Comparative Political Studies*, 47(4), 601-653.

Folbre, N. (1994). Children as public goods. *American Economic Review*, 84, 86-90.

Folbre, N. (2008). *Valuing Children: Rethinking the Economics of the Family*. Cambridge, MA: Harvard University Press.

Fukuyama, F. (1991). *The End of History and the Last Man*. Free Press.

Gal, R., Medgyesi, M., & Vanhuysse, P. (2020). The transfer cost of parenthood: A National Transfer Accounts analysis for Europe. *National Transfer Accounts*.

Gauthier, A. & Hatzius, J. (1997). Family benefits and fertility: An econometric analysis. *Population Studies*, 51, 295-306.

Gauthier, A. (1996). *The State and the Family: A Comparative Analysis of Family Policies in Industrialized Countries*. Oxford: Clarendon Press.

Gauthier, A. (2013). Family policy and fertility: Do policies make a difference? In A. Buchanan & R. Rotkirch (Eds.), *Fertility Rates and Population Decline: No Time for Children?* (pp. 41-59). London: Palgrave Macmillan.

Glass, J., Simon, R. W. & Andersson, M. A. (2016). Parenthood and happiness: Effects of work-family reconciliation policies in 22 OECD countries. *American Journal of Sociology*, 122(3).

Gabos, A., Gál, R. I. & Kézdi, G. (2009). The effects of child-related benefits and pensions on fertility by birth order: A test on Hungarian data. *Population Studies*, 63(3), 215-231.

Gal, R. I., Vanhuysse, P., & Vargha, L. (2018). Pro-elderly welfare states within child-oriented societies. *Journal of European Public Policy*, 25(6), 944-958.

Gerovska Mitev, M. (2019). Social policy during a decade of centre-right governance in Macedonia. *Western Balkan economies in transition: Recent economic and social developments*, 123-134.

Hausermann, S. (2020). Dualization and electoral realignment. *Political Science Research and Methods*, *8*(2), 380-385.

Hemerijck, A. (Ed.). (2017). *The Uses of Social Investment*. Oxford: Oxford University Press.

Huber, E. & Stephens, J. (2001). *Development and Crisis of the Welfare State: Parties and Policies in Global Markets*. Chicago: The University of Chicago Press.

Inglot, T., Szikra, D., & Rat, C. (2022). Mother, families, or children?: Hungary, Poland, and Romania. University of Pittsburgh Press.

Kalwij, A. (2010). “The impact of family policy expenditures on fertility in Western Europe”, Demography 47(2):503-519.

Kamerman, S. & Kahn, A. (Eds.). (1978). *Family Policy: Government and Families in Fourteen Countries*. New York: Columbia University Press.

Kamerman, S. (2010). Child, family, and the state: The relationship between family policy and social protection policy. In S. Kamerman, S. Phipps, and A. Ben-Arieh (Eds.), *From Child Welfare to Child Well-Being* (pp. 429-437). New York: Springer.

Kaufmann, F. (2002). Politics and Policies towards the Family in Europe: A Framework and an Inquiry into Their Differences and Convergences. In *Family Life and Family Policies in Europe*, Vol. 2, Problems and Issues in Comparative Perspective, edited by Franz-Xavier Kaufmann, Anton Kuijsten, Hans-Joachim Schulze, and Klaus Peter Strohmeier, 419–490. Oxford: Oxford University Press.

Kohler, H., Beherman, J.R., & Skytthe, A. (2004). Partner+Children = Happiness? An Assessment of the Effect of Fertility and Partnerships on Subjective Wellbeing.

Kohler, H., Billari, F., & Ortega, J. (2002). The Emergence of Lowest-Low Fertility in Europe during the 1990s. *Population and Development Review*, 28(4), 641-680.

Kornai, J. (2015). Hungary’s U-turn: Retreating from democracy. *Journal of Democracy, 26(3),* 34–48.

Korpi, W. (1989). Power, politics, and state autonomy in the development of social citizenship: Social rights during sickness in eighteen OECD countries since 1930. *American Sociological Review*, 54(3), 309-328.

Korpi, W., & Palme, J. (2003). New politics and class politics in the context of austerity and globalization: Welfare state regress in 18 countries, 1975-95. *American Political Science Review*, 97(3), 425-446.

Korpi, W., Ferrarini, T., & Englund, S. (2013). Women’s opportunities under different family policy constellations: gender, class, and inequality trade-offs in Western countries re-examined. *Social Politics*, 20(1), 1–40.

Kotlikoff, L.J., & Burns, S. (2012). *The Clash of Generations.* Cambridge: MIT Press.

Krastev, I. (2016). What’s wrong with East-Central Europe?: Liberalism’s failure to deliver. *Journal of Democracy, 27(1),* 35–38.

Krastev, I., & Holmes, S. (2019). Populisms in Eastern Europe: A demographic anxiety. *Le Debat*, 24(2), 161-169.

Kreyenfeld, M., & Konietzka, D. (2017). Childlessness in Europe: Contexts, causes, and consequences preface. In *Childlessness in Europe: Contexts, Causes, and Consequences*, V-VI. Springer.

Kulcsar, L., & Brown, D. (2017). Population Ageing in Eastern Europe: Toward a Coupled Micro-Macro Framework. *Regional Statistics*, 7(1), 115–134.

Lewis, J., & West, A. (2017). Early Childhood Education and Care in England under Austerity: Continuity or Change in Political Ideas, Policy Goals, Availability, Affordability and Quality in a Childcare Market? *Journal of Social Policy*, 46(2), 331–348.

Lister, R. (1994). She has other duties: women, citizenship and social security. In S. Baldwin and J. Falkingham (Eds.), *Social Security and Social Change: New Challenges to the Beveridge Model* (pp. 31–44). New York and London: Harvester Wheatsheaf.

Luci-Greulich, A., & Thévenon, O. (2013). The impact of family policies on fertility trends in Western countries. *Population and Development Review*, 39(4), 657–693.

Lutz, W., Skirbekk, V., & Testa, M.R. (2006). The low fertility trap hypothesis. *Vienna Yearbook of Population Research*, 4, 167–192.

Magda, I., Kielczewska, A., & Brandt, N. (2018). The "Family 500+" Child Allowance and Female Labour Supply in Poland. *Instytut Badan Strukturalnych*. Working Paper.

Milligan, K. (2005). Subsidizing the stork: New evidence on tax incentives and fertility. *Review of Economics and Statistics*, 83(3), 539-555.

Misra, J., Budig, M., & Moller, S. (2007). Reconciliation policies and the effects of motherhood on employment, earnings and poverty. *Journal of Comparative Policy Analysis: Research and Practice*, 9, 135–155.

Morel, N., Palme, J., & Palier, B. (Eds.) (2012). *Towards a Social Investment Welfare State? Ideas, Policies and Challenges.* Bristol: Policy Press.

Mudde, C. (2017). Populism: A Very Short Introduction. Oxford University Press.

Mätzke, M., & Ostner, I. (2010). Introduction: Change and Continuity in Recent Family Policies. *Journal of European Social Policy*, 20, 387–398.

Naldini, M., & Saraceno, C. (2008). Social and Family Policies in Italy: Not Totally Frozen but Far from Structural Reforms. *Social Policy and Administration*, 42(7), 733–748.

Norris, P., & Inglehart, R. (2019). Cultural backlash: Trump, Brexit, and authoritarian populism. *Cambridge University Press*. doi:10.1017/9781108595841

Orenstein, M. A. (2008). *Privatizing pensions: The transnational campaign for social security reform*. Princeton University Press.

Orloff, A. (1993). Gender and the social rights of citizenship: the comparative analysis of gender relations and welfare states. *American Sociological Review*, 58(3), 308–328.

O'Sullivan, J. (2020). Silver tsunami or silver lining? Why we should not fear an ageing population. *Sustainable Population Australia*, Discussion Paper.

Pfau-Effinger, B. (2004). Socio-historical paths of the Male Breadwinner Model—An Explanation of Cross-national Differences. *British Journal of Sociology*, 55(3), 377–399.

Pierson, P. (2000). Increasing returns, path dependence, and the study of politics. *American Political Science Review*, 94(2), 251-267.

Protzer, E., & Summerville, P. (2021). *Reclaiming populism: How economic fairness can win back disenchanted voters*. John Wiley & Sons.

Rose, J. (2016). *Free Time.* Princeton: Princeton University Press.

Sainsbury, D. (Ed.) (1994). *Gendering Welfare States.* London: Sage.

Saraceno, C. (1997). Family change, family policies and the restructuring of welfare. In *Family, Market and Community: Equity and Efficiency in Social Policy* (pp. 81–100). Paris: OECD.

Saraceno, C. (2022). *Advanced Introduction to Family Policy.* Elgar Advanced Introductions.

Saraceno, C., & Keck, W. (2010). Can we identify intergenerational policy regimes in Europe? *European Societies*, 12(5), 675–696.

Sobotka, T., & Beaujouan, E. (2014). Two Is Best? The Persistence of a Two-Child Family Ideal in Europe. *Population and Development Review*, 40(3), 391-419.

Speder, Z. (2016). Fertility decline and the persistence of low fertility in a changing policy environment—A Hungarian case study. In R. Rindfuss & M. Choe (Eds.), *Low fertility, institutions, and their policies: Variations across industrialized countries.* Springer.

Swank, D. (2005). Globalisation, domestic politics, and welfare state retrenchment in capitalist democracies. *Social Policy and Society*, 4(2), 183-195.

Szalma, I., Haskova, H., Olah, L., & Takacs, J. (2022). Fragile pronatalism and reproductive futures in European post-socialist contexts. *Social Inclusion*, 10(3), 82-86.

Tepe, M., & Vanhuysse, P. (2010). Elderly bias, new social risks and social spending: change and age in eight programmes across four worlds of welfare, 1980-2003. *Journal of European Social Policy*, 20(3), 217-234.

Togman, R. (2019). *Nationalizing Sex: Fertility, Fear, and Power.* Oxford: Oxford University Press.

Vanhuysse, P. (2006). *Divide and pacify: Strategic social policies and political protests in post-communist democracies*. Central European University Press.

Verhoeven, W. J., Jansen, W., & Dessens, J. (2009). Losers in market transition: the unemployed, the retired, and the disabled. *European Sociological Review*, *25*(1), 103-122.

Vlandas, T. (2023). From gerontocracy to gerontonomia: The politics of economic stagnation in ageing democracies. *The Political Quarterly, 94(3),* 452–461.

Wennemo, I. (1994). *Sharing the Costs of Children: Studies on the Development of Family Support in the OECD Countries.* Dissertation Series No. 25. Stockholm: Swedish Institute for Social Research.

Paper 1: Variation by Child Age, Birth Order, and Household Income: Policy Orientations Reflected in the Design of Child Benefits in Europe

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Abstract

Motivated by the growing prominence of fertility incentivisation in European family policymaking, this paper examines the variation in child benefit size over the course of childhood and between birth orders in Europe. It uses the term "older-oriented age bias" to refer to benefits that are larger in later childhood and the term "younger-oriented age bias" for larger benefits in earlier childhood. Similarly, it refers to size variation tilted towards subsequent birth orders as "higher-oriented birth order bias" and to variation favouring lower birth orders as "lower-oriented birth order bias". Based on a framework distinguishing between four classical policy orientations of child benefits (child cost compensation, fertility incentivisation, child poverty reduction, and child development), this paper examines the extent to which these orientations are reflected in European child benefits by answering eight (sets of) sub-questions regarding the age and birth order variation in benefit size.

To assess these variation patterns, the paper examines monthly child benefits (allowance- and tax-based) for the first four birth orders at child ages 2, 9, and 17 in low-income and middle-income households across 26 European countries in January 2006 and 29 in January 2021. It finds that European welfare states typically provide larger benefits for younger children, while the benefit variation by birth order depends on pre-transfer household income, albeit not without large cross-country heterogeneity for both variation patterns. Cross-country heterogeneity was also observed for the policy orientations, with fertility incentivisation and child development being reflected by more countries than child cost compensation and poverty reduction. In terms of time, the dominance of these two policy orientations was found to be even stronger in 2021.

This analysis sheds light on previously underexplored trends and implications in the design of child benefits in Europe.

Key terms: child benefits, age bias, birth order bias, policy orientations, microsimulation

Introduction

"Child benefits" is an umbrella term for all forms of government-provided monetary support issued for childbearing and/or childrearing purposes, typically to parents or legal guardians (Kamerman & Kahn 1981; Wennemo 1994; Gauthier 1996). It encompasses a wide range of support packages, including universal child benefits, employment-based child benefits, income- or means-tested child benefits, child tax allowances, child tax credits, and child tax rebates[10][11]. Child benefits account for a majority share of family policy spending in most developed countries (OECD Family Database 2021), having grown drastically and near-continuously as a share of household income over the past several decades (Daly & Ferragina 2018).

However, its dominance in family policy spending and aggregate growth over time obscure several other notable trends, not all of which necessarily point in the same positive direction. The first such trend is fiscalisation, with a majority of developed countries providing at least some of their child benefits through the tax system (Bradshaw & Nieuwenhuis 2020), and increasingly so over time (Ferrarini et al. 2012). Second, considerable cross-country differences remain, especially when it comes to low-income households, with benefit size as a share of household income for such households varying from 10% in Spain all the way to 50% in Sweden (Aaerts et al. 2023). Third, during the last decades of the 20th century, European welfare states increasingly began to provide means-tested rather than universal child benefits (Ferrarini et al. 2012). Fourth,

[10]Given the social (rather than fiscal) connotation of the term "benefit", child benefits that are issued through fiscal policy mechanisms (i.e. child tax allowances, child tax credits, and child tax rebates) are sometimes not referred to as benefits in the literature. This thesis opts for an inclusive definition that encompasses these forms of support as well. The alternative would have been to use the term "financial support for parents", which can, however, be (mis)understood as also encompassing support that does not *complement* household income, such as maternity, paternity, and parental leave.

[11]This is an illustrative rather than comprehensive list; for instance, child tax credits can be wasteable (applicable only to employed parents or guardians) or refundable (applicable to all parents or guardians). Neither is it a universally used list, as the same benefit type is sometimes referred to differently in different countries.

the aggregate growth of child benefits and other family policies is undermined by the persistence of large intergenerational inequalities in social spending, as spending on the elderly has increased much more dramatically, even after accounting for the changing age structure of the population (Tepe & Vanhuysse 2010; Kotlikoff & Burns 2012). Fifth, while child benefits have grown over time, so have the costs of raising children. As societies develop, people tend to have fewer children and invest more in them, raising the estimated cost of raising two children to up to half of monthly household income on average (Corak et al. 2005; Menyhert et al. 2021). Yet, the size of most child benefits remains far below this figure: as of 2018, the average benefit size for two children in OECD countries stood at a mere 9,6% of household income (OECD Family Database 2023), thus arguably replacing as little as a fifth of the actual childrearing costs incurred by households.

However, while trends around the distribution of child benefits by benefit type and socioeconomic groups, such as the five summarised above, have been extensively captured by the family and social policy literature, the variation in benefit size by child age and birth order has received less attention. Some notable exceptions include the studies by Aeerts et al. 2023 and Bornukova et al. 2024, both of which found that child benefits in Europe tend to be larger in early childhood and for higher birth orders (especially third children), albeit not without strong cross-country heterogeneity. Moreover, as documented earlier, the variation in benefit size by household income has been studied more thoroughly, but its interaction with the child age and birth order variation patterns has been neglected.

Motivation and Justification

This paper proposes four sets of expectations regarding the variation in benefit size by child age and birth order based on four commonly pursued functions by family and social policies. In addition to the lack of attention to these variation patterns in the existing literature, the need for a study of this kind at this time is heightened by the well-documented increase in the pursuit of two of these four policy functions (fertility incentivisation and child development) in recent

decades. Since the paper does not impute intent, the term "orientations" is used to refer to these functions in the remainder of the text.

The first of the four policy orientations of interest is *fertility incentivisation*. Political ideologies revolving around the pursuit of more births and larger populations date as far back as Ancient Rome (Togman 2019); in more contemporary history, they are associated with illiberal regimes such as Nazi Germany, Italy under Mussolini, and the Soviet Union under Stalin (Pendleton 1978), but also with liberal governments, such as interwar Sweden (Myrdal & Myrdal 1934) and postwar France (Gauthier 1993). This phenomenon has grown more rapidly in recent decades amidst below-replacement birth rates of (often far) less than 2,1 per woman and broader demographic change. According to the United Nations World Population Policies Database[12], the share of governments in the world which self-reported the adoption of policies to raise or maintain their fertility levels rose more than threefold from 9% in 1976 to 28% in 2019 (United Nations 2021).

This trend has not gone unnoticed in the academic literature, where fertility incentivisation is also considered to have gained political and policy prominence, especially in post-socialist East European countries (Frejka & Gietel-Basten 2016; Speder 2016). Palpable demographic concerns, including consistently low fertility rates, high emigration, and rapid population aging, in combination with the dominance of increasingly conservative political ideologies, have led to a re-traditionalisation of the family policy landscape (Shiffman et al. 2002; Hantrais 2004; Javornik 2016; Ghodsee 2018). This process has typically manifested itself in the form of prioritisation of longer and better-paid parental leave at the expense of childcare, as well as, crucially for this paper, the provision of increasingly large child benefits (Cook et al. 2022; Inglot et al. 2022; Wilk 2020). Seventeen out of the 21 post-socialist countries in Europe currently declare themselves to be pronatalist (United Nations 2021), as pronatalism has become a cornerstone of (typically right-wing) government manifestos across the region (Cook et al. 2022; Haskova et al. 2022; Szalma et al. 2022), but also in some West European countries, most notably in Italy (De Giorgi et al. 2023).

[12]The World Population Policies database is based on a biannual survey of governments around the world, which are asked to describe the current fertility rate in their countries (as too low, satisfactory, or too high), as well as their own policy orientation towards it (raise, no intervention, or lower).

But how, if at all, would one expect fertility incentivisation to manifest itself in child benefit variation by child age and birth order? Can one expect child benefits to affect the likelihood of having children differently based on their size at specific points in time and for specific children? The paper draws on the behavioural economics literature in formulating its theoretical expectation that fertility incentivisation as a policy orientation might warrant a prioritisation of younger child ages and higher birth orders.

In terms of child age, one can draw on the ample research on cognitive mechanisms such as hyperbolic discounting and instant gratification (Loewenstein & Thaler 1989; Harris & Laibson 2001; Hariri et al. 2006; Barlow et al. 2016). This literature posits that individuals tend to perceive a financial reward they are due to receive in the present or in the short-term future as more valuable than if they were to receive the same (or even slightly larger) reward in the long-term future[13]. In the context of childrearing costs, this suggests that benefit packages which are larger at younger child ages might be (mis)perceived by prospective parents as larger than age-neutral packages, even if the two types of packages are equally large in cumulative terms.

In terms of birth order, the behavioural economics literature suggests that any individuals who are already parents might be incentivised to consider having additional children by increases in per-child benefit size for higher birth orders, potentially at a higher proportion than the size of the increase. This assumption stems from the literature on the phenomenon of "anchoring bias" (Galinsky & Mussweiler 2001; Epley et al. 2004; Simonson & Drolet 2004; Englich et al. 2006; Ariely 2008; Kahneman 2011), or the tendency for individuals to conceive of newly obtained rewards in reference to previously obtained rewards in comparable contexts. In the context of parenthood, this would mean that larger benefits for later birth orders might incentivise parents by leveraging the fact that the benefits said parents have received for their existing children are cognitively "anchored" into their reasoning around child costs, making them perceive the increase in size as larger than would otherwise be the case.

[13]Behavioural economics experiments of this nature typically involve simulations where the respondent is faced with a choice between accepting a certain less valuable reward (usually an amount of money) in the present and a more valuable reward at a later point in time, with a majority of respondents generally opting for the former.

The second policy orientation of interest is *child cost compensation*, or the replacement of (parts of) the financial costs of raising children through horizontal redistribution from all taxpayers to parents (Saraceno 2007; Kaufmann 2012). The fulfilment of this policy orientation through child benefits is highly contingent on the age and birth order of the child. In terms of age, it has been well-documented in the academic literature that child costs tend to be lower when the child is younger (Hourriez & Olier 1997; Ekert 1998; Penne et al. 2020; Menyhert et al. 2021)[14], albeit not without some variation between countries. This tendency is attributed to shifting consumption needs over the course of childhood, leading to larger expenditure at higher child ages, mostly in domains such as extracurricular activities and entertainment. In terms of birth order, it has been shown that each additional child in a household tends to cost *less* than the preceding child (Corak et al. 2005; Browning et al. 2006; Lino et al. 2017; Pezer 2022)[15]. This estimation is attributed to the economies of scale that are created between birth orders in expenditure domains such as food, clothing, housing and babysitting, where siblings often benefit from resource-sharing opportunities.

The third policy orientation of interest is *child poverty reduction*, which carries some intuitive requirements for benefit variation over the course of childhood. To be effective in reducing child poverty, child benefits, in addition to being as large as possible for vulnerable households throughout the course of childhood, might also need to be tilted towards households with younger children. This is because even though, as demonstrated above, children cost more as they grow older, child poverty tends to be higher in households with *younger* children, mainly because pre-transfer parental income is lower in households with younger children, whose parents are more likely to find themselves at the beginning of their professional careers *and* face a higher risk of being unemployed[16].

[14]The assumption that child cost compensation would require bias towards older children is the reason why values of 0 are classified as negative age bias in the results section later. Equal benefit sizes (not only lower ones) at older child already constitute a departure from the direction of the bias that one would expect in terms of child cost compensation.

[15]The assumption that child cost compensation would require bias towards lower birth orders is the reason why values of 0 are classified as positive birth order bias in the results section later. Equal benefit sizes (rather than only higher ones) for later birth orders already constitute a departure from the direction of the bias that one would expect in terms of child cost compensation.

[16]While many countries do not provide disaggregated child poverty data by child age, data from the United Kingdom and the United States clearly demonstrate this trend, which is mostly attributable to lower labour force participation and/or earnings for parents with young children:

Moreover, in terms of birth order, even though per-child costs are smaller for lower birth orders, child poverty tends to be more common in households with numerous (usually 3+) children, not least because low-income individuals tend to have more children (e.g. Buchanan & Rotkirch 2013; Philipov et al. 2013). In and of itself, this does not constitute a compelling rationale for providing larger *per-child* benefits for later birth orders (as opposed to providing larger benefits to *all* low-income households, which are disproportionately comprised of households with multiple children). However, governments might sometimes be performing their means-testing based on the number of children, using this parameter as an administratively convenient (albeit obviously imperfect) proxy for financial need.

The final policy orientation considered in this paper is *child development*. Here, the paper draws on the "social investment" paradigm in the family and social policy literature: a set of policies and ideas that emerged in the mid-1990s – and have been championed by the Nordic welfare states – "as a response to profound and fundamental changes in the labour market and in the demographic structure of societies, and the emergence of new social risks and needs" (Hemerijck 2013). Its main application to family policy is through the idea that family policies (including child benefits) do not only fulfil valuable social functions in the present, but that they also improve the long-term physical and cognitive development of children, with a wide range of positive externalities for society, such as increased economic growth and decreased crime rates (Esping-Andersen 2002; Morgan 2011; Morel et al. 2012; Kuitto 2016; Hemerijck 2017; Pavolini & van Lancker 2018; Cooper & Stewart 2021). This growing recognition of the importance of "human capital accumulation in early childhood" (Pavolini & Van Lancker 2018: 879) tends to favour policy investment in younger children.

While the social investment paradigm does not typically explore child benefits in isolation (although see Paxson & Schady 2010; Attanasio et al. 2014; de Walque et al. 2017 for some exceptions), making "child development" a preferred term for the purposes of this paper, its underlying logic conforms with the prioritisation of younger children in benefit provision. It is

https://www.jrf.org.uk/data/child-poverty-rates-age-youngest-child-family (United Kingdom)
https://datacenter.kidscount.org/data/tables/5650-children-in-poverty-by-age-group#detailed/1/any/false/1729,37,871,870,573,869,36,868,867,133/17,18,36/12263,12264 (United States)

important to highlight here that social investment is an ambiguous concept. Its usage, as well as the theoretical expectation about benefit bias towards younger children that is derived from it, reflects the "Nordic" iteration of social investment, where social investment complements traditional social protection, rather than substituting it (Esping-Andersen 2002; Cantillon & van Lancker 2013).

Before summarising the research design in the next section, it is important to highlight once again that this paper does not impute policy intentionality. While the proposed expectations for the direction of child benefits by child age and birth order are grounded in the academic literature, this does not mean to suggest that the policy orientations in question are (always) intentionally pursued by policymakers. This conceptual choice is in line with the long-standing recognition in the family policy literature that "(…) family policies have clear, *though possibly unintended* [emphasis added], consequences for families" (Kamerman 2010: 429-30). The term "orientations" is used throughout the paper (rather than the term "objectives", which might imply intentionality), as the paper is interested in the policy orientations *reflected* by the observable benefit variation by child age and birth order, without imputing intent. This makes the paper exploratory rather than explanatory in nature.

Analytical Framework

In assessing the variation in child benefit size over the course of childhood and between birth orders, the paper proposes the terms "age bias" and "birth order bias", respectively. It differentiates between "older-oriented bias", i.e. benefits skewed towards older children, and "younger-oriented bias", i.e. disproportionately large benefits for younger children. Similarly, size patterns tilted towards higher birth orders are referred to as "higher-oriented bias" and those that favour lower birth orders as "lower-oriented bias". Based on the considerations outlined earlier vis-à-vis the four relevant policy orientations of child benefits, the paper formulates the following eight (sets of) questions.

In terms of the benefit variation over the course of childhood, it outlines three sets of questions. On the one hand, in line with child cost compensation as a policy orientation, i.e. the known trajectory of child costs over the course of childhood, it asks:

Are benefits larger for older children (older-oriented bias)? (Q1a)

However, given that early investment in children might disproportionately benefit their long-term development (child development), but also because parents might be incentivised to engage in childbearing in the first place by receiving larger benefits early on (fertility incentivisation), it also asks the opposite question:

Are benefits larger for younger children (younger-oriented bias)? (Q1b)

Moreover, child poverty tends to be higher among households with younger children, which, all else being equal, will have younger parents. This raises the following question:

Is the age bias lower (more "younger-oriented" or less "older-oriented") for low-income households than for middle-income households? (Q2)

Finally, the observed rise in pronatalism in post-socialist countries and the prominence of the social investment paradigm in the Nordic countries, both of which warrant an expectation of age bias towards younger children in our theoretical framework, also imposes the following question:

Are benefits particularly large for younger children in post-socialist[17] and Nordic[18] countries (lower age bias than the average age bias in the sample)? (Q3)

In terms of the variation between birth orders, the paper formulates two mutually exclusive questions. On the one hand, in line with the lower per-child cost of raising later birth orders (child cost compensation), it asks:

Are benefits larger for lower birth orders (lower-oriented birth order bias)? (Q4a)

[17]Belarus, Czechia, Estonia, Hungary, Latvia, Lithuania, North Macedonia, Poland, Serbia, Slovakia, Slovenia
[18]Denmark, Finland, Iceland, Norway, Sweden

However, given the presumably higher pronatalist potential of benefits skewed towards later birth orders (fertility incentivisation), it also entertains the following possibility:

Are benefits larger for higher birth orders (higher-oriented birth order bias)? (Q4b)

Moreover, given that child poverty tends to be higher among large households, it asks:

Is the birth order bias stronger (more "higher-oriented" or less "lower-oriented") for low-income households than for middle-income households? (Q5)

Furthermore, in line with its theoretical expectation of bias towards later birth orders in (most) post-socialist countries for pronatalist reasons, it asks:

Are benefits particularly large for later birth orders in post-socialist countries (higher birth order bias than the average birth order bias in the sample)? (Q6)

Finally, in terms of trends over time, in line with the growing number of pronatalist countries both according to the academic literature and in terms of self-declaration, it asks:

Have benefits become more skewed towards younger children over time? (Q7)

Have benefits become more skewed towards higher birth orders over time? (Q8)

An additional potential reason (besides the growth in fertility incentivisation) to expect an affirmative answer to Q7 is the well-documented "Scandinisation" of family policy in recent decades (Daly 2011). While this notion is typically applied to the embrace of "social investment" more broadly, i.e. mainly in terms of improved childcare, it is worth assessing if the policy rationale of catering to the needs of younger children has also translated into more younger-oriented child benefits beyond the Nordic countries.

Based on the answers to these questions, the countries included in the analytical sample are classified and grouped as outlined in the skeleton framework in Table 1.1.

Table 1.1: Policy orientations reflected in child benefit size variation by child age and birth order

#	Policy orientations of child benefits	Higher benefit size when and for whom?
1.	**Fertility incentivisation**	Earlier in childhood (-) & For higher birth orders (+)
2.	**Child cost compensation**	Later in childhood (+) & For lower birth orders (-)
3.	**Poverty reduction**[19]	Low-income age bias (+/-) < middle-income age bias (+/-) & Low-income birth order bias (+/-) > middle-income birth order bias (+/-)
4.	**Child development**	Earlier in childhood (-)

Data and Methods

To estimate the size of child benefits over the course of childhood and across birth orders, the paper adopts the method of measuring child-contingent payments (CCP), in line with the family policy literature (Corak et al. 2005; Figari et al. 2011; Pezer 2022). This method aggregates all forms of child benefits issued at specific points in time and for specific model households,

[19]Could only be tested for 20 out of the 29 countries in the sample due to the aforementioned data limitations.

including both allowance-based and tax-based benefits, but excluding work leave. The total CCP value is the sum of all relevant payments, or the cumulative marginal increase in household income as a result of having (a) child(ren), compared to an otherwise equivalent household minus the child(ren) in question.

The paper approximates monthly CCP values for 24 two-parent model households, which are obtained through the interaction of three parameters (2*4*3 = 24). First, it uses *two* income levels: middle-income (MI) at a total pre-transfer household income level of 150% of the median national wage[20] and low-income (LI) at a total pre-transfer household income level of one statutory minimum wage[2122]. These two income levels have been selected in line with the OECD Family Database[23], which uses them to approximate a middle-income household and a highly vulnerable low-income household. Since many forms of child benefits are means-tested, with a shift towards selectivity by household income especially in recent decades (e.g. Ferrarini et al. 2012), an LI household had to be included not only vis-à-vis child poverty (as one of our four policy orientations of interest), but also to obtain a more representative picture of the countries in the sample more generally. As for the MI household, an assumed income level of 150% of the median wage corresponds to the most common one-and-a-half breadwinner model in contemporary Europe. The selection of a middle-income and (very) low-income model household along these lines is common in the comparative social policy literature (e.g. Esping-Andersen 1989; Korpi 1989; Bradshaw et al. 1993; Bradshaw 1995; Palme et al. 2009, Ferrarini et al. 2012).

Second, the paper uses *four* birth orders (first, second, third, and fourth), as these were the birth orders available in the data source, encompassing the vast majority of children in all countries in the sample. Third, it uses *three* levels of child age (two, nine, and 17 years old), which are spread evenly across the age eligibility range for child benefits in most developed countries (usually 0-18 years of child age), thus approximating (albeit still rather broadly) the entire period of

[20]The first adult earns a full-time average wage and the second adult earns a part-time (50%) average wage.
[21]To simulate a highly vulnerable household, each adult in the model household earns a part-time (50%) minimum wage.
[22]For countries with no statutory minimum wage, the pre-transfer income of the LI model household was expressed as 40% of the average wage.
[23]OECD Family Database, PF1.3 Family Cash Benefits: https://www.oecd.org/els/family/database.htm

childhood. The selection of these three age levels is in line with best practices in child cost measurement in the European Union (e.g. Menyhert et al. 2021).

The data on child benefit size were derived from international and national sources. The main data source is the OECD TaxBen simulator[24], which provides comprehensive and methodologically consistent information on total child benefit size[25] in OECD member countries. The paper relies on the Online Platform edition of the simulator, from which the CCP values for the 24 model households (2*4*3) were derived[26]. For the three non-OECD member countries (Belarus, North Macedonia, and Serbia), data from the respective ministries of social affairs were used[27][28][29]. The thus-obtained broad analytical sample offers strong variation between countries in terms of socioeconomic development, welfare regimes (including multiple Nordic and post-socialist countries relevant for Q3 and Q6), demographic trends, self-declared political orientations towards birth rates, and geographical locations, thus providing a multi-layered picture of European child benefit packages. All data refer to January 2006 and January 2021; data for the low-income model households (in both years) were only available for 17 countries.

Results

This section presents the results of the analysis. First, it presents the results for age bias and birth order bias, respectively. Second, it classifies the 29 countries (26 in 2006) according to the four proposed policy orientations of child benefits.

[24]Access to the platform is available upon request and can only be obtained once.
[25]The OECD TaxBen simulator includes all forms (direct or tax-based) of income-supplementing (i.e. excluding parental leave) monetary support issued to parents on a monthly basis.
[26]The full list of benefits included in the analysis has been submitted as an Excel sheet (Appendix 1.1) and the micro-simulated data used in the analysis are provided in Appendix 1.2.
[27]North Macedonia: https://www.mtsp.gov.mk/prava-od-detska-zashtita-ns_article-roditelski-dodatok-za-dete.nspx
[28]Serbia: https://www.minbpd.gov.rs/roditeljski-dodatak/
[29]Belarus: https://www.mtdsoc.govl.bl/dettskie-posobiya/

The age bias in child benefit size is outlined in Table 1.2 (2006) and Table 1.3 (2021). Positive values (marked in green) denote bias towards older children, while negative values (marked in red) denote bias towards younger children.

Table 1.2: Age bias in child benefit size (2006)[30][31][32]

[30]The bias values refer to averages of the age biases for the four birth orders at the respective ages. All values represent percentages.

[31]The paper only compares 2-year-old children with 9-year-old children and 17-year-old children, respectively, rather than comparing 9-year-old children with 17-year-old children. This choice was motivated by the consensus on temporal discounting in the behavioural economics literature, which suggests that individuals tend to place superior importance on an imminent reward compared to an otherwise equal yet more-distant reward, but they *do not* place outsize importance on rewards available to them in the less-distant (mid-term) future compared to otherwise equal rewards in the more-distant (long-term) future.

[32]Calculated with the following formula: (max(9yo, 2yo)/min(9yo, 2yo)-1)*100) - (max(17yo, 2yo)/min(17yo, 2yo)-1)*100). For example, the (positive) value of 1,66 for Belgium in the first column indicates that the size of child benefits for 9-year-old children is 1,66% larger than it is for 2-year-old children. The information provided in this and the previous two footnotes also applies to Table 1.3.

	Middle-income			Low-income			Average
Country	Δ (2 YO, 9 YO)	Δ (2 YO, 17 YO)	**Total bias**	Δ (2 YO, 9 YO)	Δ (2 YO, 17 YO)	**Total bias**	**Average bias**
Austria	0,58	2,01	2,58	N/A	N/A	N/A	2,58
Belgium	1,66	2,73	4,40	3,15	5,19	8,34	6,37
Czechia	-13,41	-9,02	-22,43	-21,42	-9,41	-30,82	-26,63
Denmark	-3,23	-3,23	-6,46	N/A	N/A	N/A	-6,46
Estonia	0	0	0	0	0	0	0
Finland	-12,84	-24,72	-37,56	N/A	N/A	N/A	-37,56
France	-11,92	-7,54	-19,46	-20,38	-12,54	-32,92	-26,19
Germany	0	0	0	N/A	N/A	N/A	0
Greece	-3,39	-3,39	-6,79	-7,60	-7,60	-15,19	-10,99
Hungary	-18,02	-18,02	-36,03	-39,27	-39,27	-78,55	-57,29
Iceland	-2,59	-2,59	-5,18	N/A	N/A	N/A	-5,18
Ireland	-4,98	-4,98	-9,96	-8,70	-8,70	-17,40	-13,68
Italy	0,09	0,09	0,18	N/A	N/A	N/A	0,18
Latvia	0	0	0	0	0	0	0
Lithuania	-17,14	-17,14	-34,28	-23,06	-23,06	-46,12	-40,2
Luxembourg	1,97	3,95	5,92	3,00	5,99	8,99	7,46
Netherlands	1,00	0,89	1,89	1,83	2,70	4,53	3,21
Norway	0	0	0	N/A	N/A	N/A	0
Poland	0,68	-3,79	-3,11	1,15	1,15	2,31	-0,4
Portugal	0	0	0	0,81	0,81	1,63	0,82
Slovakia	-6,09	-6,09	-12,18	1,42	1,42	2,84	-4,67
Slovenia	-3,41	-3,41	-6,82	-6,24	-6,24	-12,47	-9,65
Spain	-2,42	-2,42	-4,85	-3,08	-3,08	-6,15	-5,5
Sweden	0	-1,82	-1,82	N/A	N/A	N/A	-1,82
Switzerland	0	0,74	0,74	N/A	N/A	N/A	0,74
UK	0	0	0	0	0	0	0

Mean	**-3,60**	**-3,76**	**-7,35**	**-6,96**	**-5,45**	**-12,41**	**-9,88**
Median	**0**	**-2,12**	**-2,46**	**0**	**0**	**0**	**-1,23**

Table 1.3: Age bias in child benefit size (2021)

	Middle-income			Low-income			Average
Country	Δ (2 YO, 9 YO)	Δ (2 YO, 17 YO)	Total bias	Δ (2 YO, 9 YO)	Δ (2 YO, 17 YO)	Total bias	Average bias
Austria	0,15	0,75	0,90	N/A	N/A	N/A	0,90
Belarus	-75,40	-75,40	-150,80	-102,80	-102,80	-205,60	-178,2
Belgium	-5,21	-4,42	-9,63	0,33	2,12	2,45	-3,59
Czechia	-18,50	-16,78	-35,28	-23,28	-19,31	-42,58	-38,93
Denmark	-3,96	-3,96	-7,92	N/A	N/A	N/A	-7,92
Estonia	0	0	0	0	0	0	0
Finland	-7,86	-15,36	-23,22	N/A	N/A	N/A	-23,22
France	1,05	4,55	5,60	5,50	5,82	11,32	8,46
Germany	0	0	0	N/A	N/A	N/A	0
Greece	0	0	0	0	0	0	0
Hungary	-13,17	-13,17	-26,33	-33,59	-33,59	-67,18	-46,76
Iceland	0	0	0	N/A	N/A	N/A	0
Ireland	0	0	0	0	0	0	0
Italy	-1,48	-1,48	-2,95	N/A	N/A	N/A	-2,95
Latvia	0	-176,40	-176,40	0	0	0	-88,2
Lithuania	0	0	0	1,27	1,27	2,54	1,27
Luxembourg	0,65	0,65	1,30	5,68	7,93	13,61	7,46

Netherlands	4,17	5,81	9,98	1,58	4,63	6,21	8,10
N. Macedonia	0,84	-0,23	0,61	0	-176,4	-176,4	-87,90
Norway	0	0	0	N/A	N/A	N/A	0
Poland	0,97	0,97	1,94	3,19	3,19	6,38	4,16
Portugal	-20,26	-20,66	-40,92	-48,40	-49,73	-98,13	-69,53
Serbia	-13,40	-69,50	-82,90	-16,4	-85,3	-101,7	-92,3
Slovakia	-27,32	-27,32	-54,63	-48,66	-48,66	-97,33	-75,98
Slovenia	-2,05	-2,05	-4,10	-3,74	-3,74	-7,48	-5,79
Spain	-2,34	-2,34	-4,68	-3,28	-3,28	-6,56	-5,62
Sweden	0	0	0	N/A	N/A	N/A	0
Switzerland	0	1,15	1,15	N/A	N/A	N/A	1,15
UK	1,36	1,03	2,38	13,51	11,54	25,06	13,72
Mean	**-6,27**	**-14,28**	**-20,55**	**-7,64**	**-7,16**	**-14,80**	**-17,68**
Median	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Mean (2)	**-6,24**	**-8,21**	**-14,45**	**-7,69**	**-20,18**	**-27,88**	**-21,17**

In both 2006 and 2021, the average total bias in the sample (the last column in each table) is negative, indicating age bias towards younger children and *answering Q1b affirmatively*. However, the median value in both years and both income categories is either zero or closer to zero than the mean value. This signals considerable cross-country variation, with a couple of negative outliers whose average total bias was considerably lower than the mean (Czechia and Hungary in both years; Finland and Lithuania in 2006; Belarus, North Macedonia, Portugal, Serbia, and Slovakia in 2021). Yet, in most countries, benefit size changed very little, or even not at all (Estonia, Latvia, and the UK in 2006; Greece in 2021) between the three referent ages for both income categories.

The results are fairly consistent over time with some minor differences. In 2021, the negative (younger-oriented) mean level of age bias in the sample is even lower (albeit only slightly), although the dominance of countries with negative average total bias is almost the same (21/29, i.e. 72%, in 2021, as opposed to 19/26, i.e. 73%, in 2006). These results, therefore, *provide a cautiously affirmative answer to Q7* about the expected increase in the prioritisation of younger children over time. Moreover, in terms of household income, in both years[33], the mean bias is even lower (even more younger-oriented) in the low-income category, *answering Q2 affirmatively*. There are no notable differences between 9-year-old and 17-year-old children, with very similar corresponding biases. Overall, these results indicate prioritisation of younger children in both income categories, although with significant cross-country variation.

The birth order bias in child benefit size is outlined in Table 1.4 (2006) and Table 1.5 (2021). Positive values (marked in green) denote bias towards higher birth orders, while negative values (marked in red) denote bias towards lower birth orders.

Table 1.4: Birth order bias in child benefit size (2006)[34][35][36]

[33]For the 26 countries tested in both years.

[34]The bias values refer to averages of the birth order biases at the three different referent ages for the respective birth order. All values represent percentages.

[35]Calculated with the following formula (for each relevant pair of children): (max(xch, (x-1)ch) / min(xch, (x-1)ch) - 1)*100. For example, the (positive) value of 76,20 for Belgium in the first column indicates that the size of child benefits for second children is 76,20% larger than it is for first children. The information provided in these three footnotes also applies to Table 1.5.

[36]In extreme cases, where the bias amounted to more than 1000% in either direction, a value of +/-1000 was registered in the table to facilitate legibility. For instance, the value of -1000 for the LI household in Latvia in Model 2 indicates that child benefits for second children in low-income households are at least 1000% larger than they are for third children, which typically suggests that the largest benefit type in the country is not provided for the birth order for which the decrease is observed.

	Model 1: Δ (ch1, ch 2)			Model 2: Δ (ch2, ch 3)			Model 3: Δ (ch 1, ch 2) + Δ (ch2, ch 3)			Model 4: Δ (ch 1, ch 2) + Δ (ch 2, ch 3) + Δ (ch 3, ch 4)		
	(MI)	(LI)	**Avg.**	(MI)	(LI)	**Avg.**	(MI)	(LI)	**Avg.**	(MI)	(LI)	**Avg.**
Austria	1,43	N/A	1,43	19,82	N/A	19,82	10,62	N/A	10,62	1,58	N/A	1,58
Belgium	76,20	61,22	68,71	57,01	12,46	34,73	66,60	36,84	51,72	25,33	9,76	17,55
Czechia	-103,54	-114,79	-109,17	-2,59	-0,68	-1,64	-53,07	-57,73	-55,40	-0,40	-50,58	-25,49
Denmark	-3,94	N/A	-3,94	-3,79	N/A	-3,79	-3,86	N/A	-3,86	20,15	N/A	20,15
Estonia	145,91	-10,27	67,82	5,34	21,98	13,66	75,62	5,85	40,74	30,57	13,54	22,06
Finland	-84,08	N/A	-84,08	6,37	N/A	6,37	-38,85	N/A	-38,85	-15,27	N/A	-15,27
France	87,60	50,88	69,24	63,55	21,51	42,53	75,58	36,20	55,89	19,27	-16,18	1,55
Germany	-13,68	N/A	-13,68	-5,69	N/A	-5,69	-9,69	N/A	-9,69	2,01	N/A	2,01
Greece	38,17	11,33	24,75	488,76	167,41	328,09	263,47	89,37	176,42	121,51	36,56	79,04
Hungary	-59,24	-88,66	-73,95	164,12	44,78	104,45	52,44	-21,94	15,25	-1000	-561,85	-780,92
Iceland	-64,92	N/A	-64,92	374,57	N/A	374,57	154,83	N/A	154,83	114,93	N/A	114,93
Ireland	-4,70	-13,96	-9,33	14,54	-3,35	5,60	4,92	-8,66	-1,87	-0,11	8,37	4,13
Italy	181,60	N/A	181,60	217,50	N/A	217,50	199,55	N/A	199,55	175,20	N/A	175,20
Latvia	5,29	-414,66	-204,69	13,08	-1000	-1000	9,18	-1000	-1000	5,59	-1000	-497,20
Lithuania	-3,96	74,97	35,50	183,05	35,57	109,31	89,54	55,27	72,41	-4,30	16,20	5,95
Luxembourg	17,80	4,86	11,33	20,40	8,05	14,23	19,10	6,45	12,78	-7,39	-23,47	-15,43
Netherlands	-2,93	-190,58	-96,76	-2,85	-4,84	-3,84	-2,89	-97,71	-50,30	-2,83	-46,07	-24,45
Norway	-59,49	N/A	-59,49	-2,58	N/A	-2,58	-31,04	N/A	-31,04	-11,65	N/A	-11,65
Poland	1000	30,34	1000	-85,95	-27,73	-56,84	1000	1,30	1000	1000	-10,20	494,90
Portugal	16,22	-12,42	1,90	3,90	-14,39	-5,24	10,06	-13,41	-1,67	-2,30	-17,01	-9,65
Slovakia	-51,50	-238,73	-145,11	-5,36	-7,15	-6,25	-28,43	-122,94	-75,68	-16,76	-64,81	-40,78
Slovenia	14,71	-22,08	-3,68	-5,88	6,23	0,18	4,42	-7,93	-1,75	-28,71	-27,94	-28,33
Spain	-77,64	-34,22	-55,93	0,24	-3,90	-1,83	-38,70	-19,06	-28,88	-18,15	-11,41	-14,78
Sweden	5,46	N/A	5,46	17,32	N/A	17,32	11,39	N/A	11,39	20,63	N/A	20,63

Switzerland	-2,14	N/A	-2,14	-9,07	N/A	-9,07	-5,60	N/A	-5,60	-6,98	N/A	-6,98
UK	-150,28	-149,84	-150,06	-1,93	-15,09	-8,51	-76,10	-82,47	-79,29	-39,00	-47,79	-43,40
Mean	**34,94**	**-62,15**	**-3,64**	**58,61**	**-44,65**	**14,71**	**46,77**	**-53,40**	**5,53**	**-39,00**	**-47,79**	**-43,40**
Median	**-2,54**	**-13,96**	**-3,81**	**5,85**	**-0,68**	**1,68**	**9,62**	**-8,66**	**-1,71**	**14,73**	**-102,47**	**-26,14**

Table 1.5: Birth order bias in child benefit size (2021)

	Model 1: Δ (ch1, ch 2)			Model 2: Δ (ch2, ch 3)			Model 3: Δ (ch 1, ch 2) + Δ (ch2, ch 3)			Model 4: Δ (ch 1, ch 2) + Δ (ch 2, ch 3) + Δ (ch 3, ch 4)		
	(MI)	(LI)	**Avg.**	(MI)	(LI)	**Avg.**	(MI)	(LI)	**Avg.**	(MI)	(LI)	**Avg.**
Austria	-7,28	N/A	-7,28	-0,41	N/A	-0,41	-3,84	N/A	-3,84	-9,56	N/A	-9,56
Belarus	46,20	45,40	45,80	-27,10	-27,40	-27,30	19,10	18,00	18,60	19,10	18,00	18,60
Belgium	11,65	-5,60	3,03	55,55	16,30	35,93	33,60	5,35	19,48	27,38	-4,50	11,44
Czechia	-235,60	-133,57	-184,58	41,87	0,78	21,33	-96,87	-66,39	-81,63	63,05	-5,33	28,86
Denmark	16,95	N/A	16,95	-16,29	N/A	-16,29	0,33	N/A	0,33	-10,21	N/A	-10,21
Estonia	46,29	143,50	94,90	372,65	47,57	210,11	209,47	95,53	152,50	51,24	-131,56	-40,16
Finland	-56,90	N/A	-56,90	17,92	N/A	17,92	-19,49	N/A	-19,49	16,05	N/A	16,05
France	21,24	27,61	24,43	71,87	21,26	46,56	46,56	24,43	35,49	19,13	-9,03	5,05
Germany	-10,82	N/A	-10,82	-2,49	N/A	-2,49	-6,65	N/A	-6,65	1,58	N/A	1,58
Greece	13,38	-13,94	-0,28	259,72	48,50	154,11	136,55	17,28	76,91	111,45	0,39	55,92
Hungary	58,20	33,77	45,99	47,38	-56,82	-4,72	52,79	-11,53	20,63	-40,85	-528,41	-284,63
Iceland	1000	N/A	1000	-14,15	N/A	-14,15	492,92	N/A	492,92	18,36	N/A	18,36
Ireland	-3,08	-40,63	-21,86	-2,99	-12,76	-7,87	-3,03	-26,70	-14,86	-2,94	-15,60	-9,27
Italy	-23,33	N/A	-23,33	95,08	N/A	95,08	35,88	N/A	35,88	107,82	N/A	107,82
Latvia	28,21	16,20	22,21	54,32	26,63	40,47	41,26	21,41	31,34	2,17	3,80	2,99
Lithuania	414,56	12,00	213,28	-133,46	-16,51	-74,99	140,55	-2,26	69,14	-116,68	-25,07	-70,88
Luxembourg	41,73	-33,76	3,98	8,40	-4,09	2,16	25,07	-18,93	3,07	-10,24	-12,82	-11,53
N. Macedonia	-43,50	-43,50	-43,50	131,80	131,80	131,80	88,30	88,30	88,30	68,90	68,90	68,90
Netherlands	-1,93	-62,33	-32,13	-1,89	-13,36	-7,63	-1,91	-37,84	-19,88	-1,88	-10,29	-6,08
Norway	-64,85	N/A	-64,85	32,99	N/A	32,99	-15,93	N/A	-15,93	14,57	N/A	14,57
Poland	-12,70	-42,88	-27,79	21,88	7,68	14,78	4,59	-17,60	-6,51	5,96	-7,02	-0,53
Portugal	110,95	21,82	66,39	-0,63	128,30	63,84	55,16	75,06	65,11	-42,90	46,56	1,83
Serbia	119,60	119,60	119,60	61,70	75,40	68,60	181,30	195,00	188,20	230,30	232,00	231,20
Slovakia	-198,34	-232,02	-215,18	-4,52	-7,92	-6,22	-101,43	-119,97	-110,70	-4,42	-7,63	-6,03
Slovenia		-			-			-			-	-

	81,01	26,46	27,28	106,96	7,54	49,71	93,99	17,00	38,49	19,01	20,89	0,94
Spain	-27,32	-1.000,00	-513,66	508,04	1.000,00	754,02	240,36	240,36	240,36	113,88	- 1000	-443,06
Sweden	8,74	N/A	8,74	26,58	N/A	26,58	17,66	N/A	17,66	22,59	N/A	22,59
Switzerland	-3,91	N/A	-3,91	7,72	N/A	7,72	1,90	N/A	1,90	19,71	N/A	19,71
UK	-54,92	-155,22	-105,07	-1,64	-139,66	-70,65	-28,28	-147,44	-87,86	95,81	-45,41	25,20
Mean	**-43,94**	**-68,50**	**-1,65**	**59,20**	**60,91**	**50,60**	**56,55**	**2,58**	**29,57**	**27,19**	**-50,14**	**-11,47**
Median	**8,74**	**-20,20**	**-0,28**	**21,88**	**4,23**	**13,29**	**25,07**	**N/A**	**25,07**	**18,36**	**N/A**	**18,36**
Mean (2)[37]	**-44,31**	**-87,74**	**-6,53**	**59,63**	**61,08**	**49,79**	**51,97**	**-13,33**	**21,63**	**18,08**	**-68,19**	**-25,05**

In both 2006 and 2021, the mean total bias in the sample (the last column in each table) is negative, indicating bias towards lower birth orders across the four birth orders of interest. However, to provide a more meaningful answer to Q4 and Q5, we ran an additional three models up to the second and third birth order, respectively (models 1 and 2), as well as cumulatively (model 3)[38]. In both years, not only the size of the bias but also (sometimes) the sign changed between these models, with the bias shifting towards higher birth orders in models 2 and 3, suggesting prioritisation of third children. Thus, the implications of the results for Q4a and Q4b depend on the model and *we cannot provide a definitive answer to either Q4a or Q4b*. There is also strong cross-country variation, as some countries reveal positive values for all four models in both years (Belgium in 2006; Greece, Latvia, and Serbia in 2021), while others reveal uniformly negative values in both years (the Netherlands and Slovakia).

When it comes to differences by household income, however, the birth order results are much less ambiguous. Remarkably, in both years and seven of the eight models (apart from Model 2 in 2021), the mean bias is lower for low-income households, *answering Q5 negatively*. In six of the eight models, with the exception of Model 2 and Model 3 in 2021, even the sign changes between the two income categories, as it shifts from a positive mean value (bias towards higher birth

[37]For all countries in the sample except Belarus, North Macedonia, and Serbia (for consistency with 2006)

[38]This is because, while the conceptualisation of fertility incentivisation in this paper mandates increases in benefit size from any lower birth order to any higher birth order, budget limitations might prompt governments interested in fertility incentivisation to focus only on some birth orders.

orders) for middle-income households to a negative mean value (bias towards lower birth orders) for low-income households. The clearest examples of this trend are Latvia in 2006, as well as Belgium, Hungary, Luxembourg, and Slovenia in 2021, where the bias drops the most drastically (and almost always changes the sign) between the two income categories in most of the models.

In terms of the trend over time, there is a considerable difference between 2006 and 2021. While the results for 2006 exhibited a majority share of instances of negative birth order bias (144/276 red boxes, as opposed to 132/276 green boxes), the results for 2021 reversed this dynamic and exhibited a majority share of instances of positive birth order bias (176/312 green boxes, as opposed to 136/312 red boxes). This *provides an affirmative answer to Q8* about the expected increase in the prioritisation of higher birth orders over time. The trend remains the same if one excludes the three additional countries considered in 2021 (146 green boxes, as opposed to 130 red boxes). Moreover, the increase is the highest in models 2 and 3, indicating growing prioritisation of third children.

Finally, Table 1.6 outlines the classification of the 29 countries according to the four policy orientations, based on the interaction between the obtained results for child age and birth order.

Table 1.6: Policy orientations reflected in child benefit size by child age and birth order (results)

#	Policy orientation of child benefits	Direction of bias in benefit size	Countries (2006)[39]	Countries (2021)[40]
1.	**Child cost compensation**	Later in childhood (+) & For lower birth orders (-)	Luxembourg (4) Netherlands (1, 2, 3, 4) Portugal (2, 3, 4) Switzerland (1, 2, 3, 4)	Austria (1, 2, 3, 4) Lithuania (2, 4) Luxembourg (4) Netherlands (1, 2, 3, 4) Poland (1, 3, 4) Switzerland (1) UK (1, 2, 3)
2.	**Fertility incentivisation**	Earlier in childhood (-) & For higher birth orders (+)	Denmark (4) Estonia (1, 2, 3, 4) Finland (2) France (1, 2, 3, 4) Germany (4) Greece (1, 2, 3, 4) Hungary (2, 3) Iceland (2, 3, 4) Ireland (2, 4) Lithuania (1, 2, 3, 4) Poland (1, 3, 4) Slovenia (2)	*Belarus (1, 3, 4)*[41] Belgium (1, 2, 3, 4) Czechia (2, 4) Denmark (1, 3) Estonia (1, 2, 3) Finland (2, 4) Germany (4) Greece (2, 3, 4) Hungary (1, 2, 3) Latvia (1, 2, 3, 4) *North Macedonia (2, 3, 4)* Portugal (1, 2, 3, 4) *Serbia (1, 2, 3, 4)* Slovenia (1, 2, 3) Spain (1, 2, 3) Sweden (1, 2, 3, 4)
3.	**Poverty reduction**[42]	Low-income age bias (+/-) < middle-income age bias (+/-) & Low-income birth order bias (+/-) > middle-	Czechia (2) Hungary (4) Ireland (4) Lithuania (1, 4) Slovenia (2, 4) Spain (1, 3)	Czechia (1,3) Portugal (2, 3, 4) *Serbia (2, 3, 4)* Spain (2)

[39]For the three policy orientations whose indicators include the birth order bias, the specific models in tables 1.3 and 1.4 that indicate the respective policy function are indicated in brackets.

[40]Countries with positive (age or birth order) bias for one income category and negative bias for the other were classified under the corresponding category for whichever bias was stronger.

[41]For all italicised countries, data were only available for 2021.

[42]Could only be tested for 20 out of the 29 countries in the sample due to the aforementioned data limitations, restricting the number of countries for which this policy orientation could be observed.

		income birth order bias (+/-)		
4.	**Child development**	Earlier in childhood (-)	Czechia Denmark Estonia Finland France Germany Greece Hungary Iceland Ireland Latvia Lithuania Norway Poland Slovakia Slovenia Spain Sweden United Kingdom	*Belarus* Belgium Czechia Denmark Estonia Finland Germany Greece Hungary Iceland Ireland Italy Latvia *North Macedonia* Norway Portugal *Serbia* Slovakia Slovenia Spain Sweden

Overall, child development was the most commonly reflected policy orientation of child benefits in 19 (out of 26) and 21 (out of 29) countries in 2006 and 2021, respectively[43]. Between child cost compensation and fertility incentivisation, the respective conceptualisations of which in this paper are mutually exclusive, as each is comprised of a set of two indicators opposite to the other set, fertility incentivisation (12 countries in 2006 and 16 in 2021) is considerably more common in both years than child cost compensation (4 countries in 2006; 7 in 2021). Finally, poverty reduction was only reflected in six countries in 2006 and four countries in 2021.

[43]It is worth noting, however, that, as per the aforementioned conceptualisation, countries had to meet one condition (younger-oriented age bias) to be classified under "child development", as opposed to having to meet two conditions for the remaining three policy orientations.

The country classification also allows answers to Q3 and Q6 regarding the eleven post-socialist and five Nordic countries in the sample. Child benefits are indeed larger for younger children in post-socialist countries, as all eight such countries (100%) in 2006, as well as nine of the eleven (82%) in 2021, exhibited negative bias (and were classified under "child development") in both years, compared to 73% (19/26) in 2006 and (21/29) in 2021 (72%) for the entire country sample. A similar conclusion applies to the five Nordic countries, all five of which met this condition in both years, again well above the average for the sample. This provides an *affirmative answer to Q3*. Finally, returning to the birth order results in tables 1.4 and 1.5 *reveals a mixed answer to Q6*, as the average bias was, in fact, lower in the eleven post-socialist countries than in the full sample in 2006 but higher in 2021. The bias for post-socialist countries was higher-oriented in only 42/96 (44%) and 80/132 (61%) relevant iterations (across the four models) for 2006 and 2021, respectively, as opposed to 48% in 2006 and 56% in 2021, respectively, for the full sample.

Discussion and Limitations

This section provides some potential explanations for the observed findings for each policy orientation, as well as for some of the (sets of) countries that emerged as reflecting (or not reflecting) the four orientations.

Fertility incentivisation is an increasingly important part of the academic debate on child benefits (e.g. Frejka & Gietel-Basten 2016; Speder 2016). This paper finds some evidence of fertility incentivisation being reflected in the benefit variation by both child age and birth order in the sample. As discussed above vis-à-vis child cost compensation, the indicators for which were opposite to the ones for fertility incentivisation, three of the four proposed indicators of fertility incentivisation (negative age bias for both income categories and positive birth order bias for middle-income households[44] but not for low-income households) were observed in the respective mean values in the sample. Since this work does not impute policy intentionality, it invites further research into whether these biases might constitute intentional policy avenues of

[44]For all four models in 2021 and three of the four models in 2006.

pronatalism. That being said, a superficial look at countries' stated policy orientations towards fertility (United Nations 2022) supports this assumption. Of the 16 countries classified as reflecting fertility incentivisation in the analysis in 2021 (no data on stated pronatalist orientations are available for 2006 by country), eleven (69%) self-identified as pronatalist in the same year, which exceeds the share of self-identified pronatalist countries in the full sample (16/29, i.e. 55%).

Child cost compensation is arguably the most intuitive policy orientation of child benefits. The analysis excludes the overall size of the benefits, which is obviously more important than its variation by age and birth order in achieving child cost compensation. However, at any benefit size, prioritising child cost compensation would require prioritising older children and lower birth orders. Yet, the mean value in the sample indicates bias towards *younger* children for both income categories and *higher* birth orders in the middle-income category. By contrast, the results for birth order variation in the low-income category *were* consistent with the child cost compensation orientation (negative mean birth order bias in six of the eight models for the two years), although these apparent double standards between the middle-income and low-income category can be problematised from a poverty reduction perspective (see below). In any case, child cost compensation did not come across as a major policy orientation, with only four countries in 2006 and seven countries in 2021 favouring older children *and* lower birth orders (Table 1.6). The implications of these findings will be considered alongside the findings for the remaining policy orientations below.

Poverty reduction is one of the most commonly analysed policy orientations of child benefits (e.g. Popova 2016; van Mechelen & Bradshaw 2013). Importantly, by limiting itself to variation patterns by age and birth order, this analysis is blind to benefit size as the most intuitive indicator of poverty reduction. Moreover, this research design imposes rather strict criteria for treating a benefit package as conducive to poverty reduction, as it requires countries to exhibit lower bias in the low-income category than in the middle-income category for birth order (because larger households are more likely to be poor) *and* higher bias in the low-income category than in the middle-income category for age (because younger children are more likely to be experiencing

poverty). Finally, due to the aforementioned data limitations, this orientation could only be tested for 17 countries.

Nonetheless, it is striking that these two conditions coexisted in only six countries (and only for some birth order models) in 2006 and four countries in 2021, which amounts to a mere 23% and 14% of the sample, respectively[45]. This selective decrease in benefit size for large low-income households evades standard family policy vocabulary. "Vertical universalism" (Saraceno 2022), for instance, captures the opposite trend of providing benefits regardless of household income yet tilting their size towards low-income households, but there does not seem to be any well-established concept capturing size patterns tilted *against* these households (although see the discussion regarding the broader notion of welfare chauvinism below).

While it is difficult to provide a satisfactory explanation for the apparent relative neglect of low-income households with *younger* children in the majority of countries in the sample, the finding that the *birth order* bias tends to be lower in low-income households might offer a meaningful contribution to the debate on the dissociation between need and support for large families in some contemporary welfare states. A notable example of this trend is the United Kingdom, where means-tested child benefits for low-income households, which constitute the largest form of child benefits in the country, are limited to the first two children (Andersen et al., 2022; Reader et al., 2022). This is strongly reflected in the results in this paper, as the United Kingdom's birth order bias is (much) lower in the low-income than in the middle-income category in all eight year-models in the analysis, which signals the UK's growing departure from its historical status as a pioneer in family poverty reduction in Europe (Bahle 1994; Pedersen 1993).

A similar trend is occurring in countries such as Hungary, whose birth order bias is (much) lower in the low-income than in the middle-income category in seven of the eight year-models, although possibly for different reasons to the UK. Unlike the UK, Hungary seeks to incentivise fertility (according to the academic literature (e.g. Cook et al. 2022), by official self-declaration, as well as in this research design for 2021). Its birth order bias selectively increases for middle-

[45]As indicated above, we could only look at poverty reduction for 20 of the countries in the sample due to data limitations.

income households between the first three birth orders, before falling abruptly for the fourth child (in both income categories). Further research is needed to establish whether this might be an indirect attempt at excluding the Romani community, who are disproportionately likely to be poor and have large families, and whose disadvantaged status in Hungary has been well-documented (e.g. Guy & Kovacz 2006). Regardless of its causes, however, the unfavourable treatment of large low-income households is so striking in some countries that it prompts us to suggest that poverty perpetuation – rather than poverty reduction – might be a more common (intentional or not) policy orientation in the sample, although the validity of this admittedly strong claim is highly contingent upon the research design choices in this paper. Further research is needed into whether and to what extent this trend ought to be viewed as a form of welfare chauvinism, linking it to the rich literature on benefit "deservingness" (e.g. Brady & Finnigan 2014; Eick 2024).

Finally, child development has been attracting an increasing amount of attention in the social policy literature, particularly within the social investment paradigm (e.g. Esping-Andersen, 2002; Kuitto 2016). In this research design, child development shares its indicator (negative age bias) with fertility incentivisation, which, as indicated above, was observed in the mean value of the sample. Thus, child development emerged as the most commonly reflected of the four policy orientations, especially in the five Nordic countries typically associated with it. However, as explained earlier, classifying a country as reflecting child development required only one condition to be met in this research design, as opposed to two for the remaining orientations, which precludes a direct comparison of the commonality of the four orientations. Moreover, the results included seven countries (five in 2006) with only *de facto* negative total mean bias (of 0%), as their benefit size does not change at all based on child age. These two caveats point to the importance of avoiding an overinterpretation of the evidence in favour of child development presented in this paper. However, it is noteworthy that child development has emerged as (relatively) prominent in the findings, despite attracting increasing critiques over the past decade (e.g. Cantillon & van Lancker 2013; Saraceno 2015; Pavolini & van Lancker 2018).

In terms of the comparative perspective, as indicated earlier, the expectations in this paper regarding the importance of fertility incentivisation in post-socialist countries were partly confirmed, as these countries tended to prioritise younger children and higher birth orders less than the sample as a whole in 2006, but more in 2021. It is worth highlighting here that the results were skewed downwards by the tendency in countries such as Hungary, Poland, and to a lesser extent Latvia, to de-prioritise later birth orders in the low-income category, despite prioritising them in the middle-income category. This finding reiterates the importance of viewing pronatalism in these countries as a highly political phenomenon (Cook et al. 2022; Inglot et al. 2022), with fertility incentivisation seemingly competing against other policy and political objectives and thus eschewing any straightforward country classification. At the same time, the strong trend towards fertility incentivisation over time by these metrics seems noteworthy.

It is also appropriate to acknowledge several limitations to this analysis. The most important one is the exclusion of benefit size as an indicator of policy orientation. This paper recognises that the two indicators (variation by age and birth order) can only reveal a small (albeit highly underexplored) part of the overall set of policy implications posed by child benefits. The extent to which the 26 benefit packages (29 in 2021) in the sample can exhibit any of the four policy orientations in the study through their variation by age and birth order is highly contingent on their underlying size.

Moreover, additional limitations were encountered specific to the conceptualisation of (some of) the four orientations. The most important one relates to child cost compensation, as the distribution of child costs by age and birth order differs between countries. In operating with the cost relativities assumed in most internationally recognised equivalence scales, i.e. higher costs for older children and lower birth orders, the paper assumes that the *direction* of the variation is the same in most countries, even if the exact gradient might differ. The latter concern is, however, particularly applicable to the benefit variation by age in countries with more expensive childcare for younger children, which might (partly) counteract the otherwise larger consumption expenditures at higher child ages.

It is also worth recognising that child benefits are merely one (albeit highly and increasingly common across Europe) instrument in the broader policy toolkit for achieving these policy orientations, some of which (especially child development and to some extent fertility incentivisation) might be more likely to be achieved through non-monetary provisions and interventions. The exclusive focus on child benefits has precluded this paper from contributing to the rich family policy literature on the policy orientations of this form of support *in conjunction with* other family policies, including (de)familialisation trends and their impact on the broader relationships between the state, the family, and the labour market (e.g. Ferrarini 2006; Saraceno 2016).

Another set of limitations stems from the selected data and methodology. The main data source for the paper, the OECD TaxBen simulator, achieves comparability between countries at the expense of omitting data on in-kind child benefits, one-off payments, as well as any support available at the sub-national level. The absence of such data might have skewed the results for age and birth order bias in an unknown direction. Moreover, any analysis of child benefits for specific model households fails to provide a representative picture of the general population. This selectivity constitutes another important limitation, especially since child benefits are sometimes tweaked or withheld altogether based on criteria such as citizenship and employment status (e.g. Marchal & van Lancker 2019).

Furthermore, the dichotomous measurement of age and birth order bias (as either positive or negative) obscured some of the variation in the sample, which was sometimes considerable due to the presence of several highly biased countries for age and/or birth order. In other cases, it might have overstated the variation, as (even those) countries with biases close to zero were lumped in the same respective category (positive or negative) as countries with much larger biases for the purposes of the country classification in Table 1.6. Finally, while encompassing most children in the (up to) 29 countries in our sample, the inclusion of only four birth orders due to data limitations might have (in rare cases) skewed the findings, as size variation patterns might change for fifth children and above.

Conclusion

The analysis of the variation in child benefits at different child ages and between different birth orders in (up to) 29 European countries in this paper has revealed strong cross-country variation. It found that European welfare states typically provide larger support for younger children, while benefit variation in terms of birth orders typically depends on pre-transfer household income. By linking these variation patterns to four commonly assumed policy orientations in the academic literature, we found that child development is the most commonly facilitated policy orientation in this fashion, followed by fertility incentivisation, child cost compensation, and poverty reduction, although the research design adopted in the paper precludes direct comparability between these four orientations.

By moving beyond a generic understanding of benefit size in considering the policy orientations of child benefits, this study has proposed a set of previously underexplored potential policy implications that might provide a valuable starting point for further research on this topic by social policy scholars, demographers, and political scientists. Some intuitive avenues for such research would include examining the drivers of the identified size variation patterns (Paper 3) to better understand the socio-political and structural context in which such policy choices are made. Another valuable approach would be to measure outcomes and test the extent to which the policy orientations discussed in this paper are advanced *effectively* (Paper 4), if at all, by the size variation patterns linked to them in this paper.

Bibliography

Aaerts, E., Marx, I., & Parolin, Z. (2023). Minimum income support for families with children in Europe and the US: Where does it stand? Working Paper No. 22/03. University of Antwerp.

Ajzen, I., Klobas, J. (2013). Fertility intentions: An approach based on the theory of planned behavior. *Demographic Research*, 29(8), 203-232.

Andersen, K., Patrick, R., Reeves, A. (2022). Needs matter: How the two-child limit and the benefit cap harm children. *Benefit Changes & Larger Families*.

Ariely, D. (2008). Predictably irrational: The hidden forces that shape our decisions. HarperCollins Publishers.

Barlow, P., Reeves, A., McKee, M., Galea, G., Stuckler, D. (2016). Unhealthy diets, obesity and time discounting: A systematic literature review and network analysis. *Obesity Reviews*, 17(9), 810-819.

Billari, F. C., Philipov, D., Testa, M.-R. (2009). Attitudes, norms, and perceived behavioral control: Explaining fertility intentions in Bulgaria. *European Journal of Population*, 25(4), 439-465.

Bradshaw, J., Nieuwenhuis, R. (2020). Poverty and the family in Europe. In Norbert F. Schneider & Michaela Kreyenfeld (Eds.), *Research Handbook on the Sociology of the Family*. Elgar.

Browning, M., Chiappori, P.A., Lewbel, A. (2006). Estimating consumption economies of scale, adult equivalence scales, and household bargaining power. Working Paper 289, Department of Economics, University of Oxford.

Buchanan, A., Rotkirch, R. (Eds.) (2013). Fertility rates and population decline: No time for children? London: Palgrave Macmillan Studies in Family and Intimate Life.

Castles, F. G. (2004). The future of the welfare state - Crisis myths and crisis realities. Oxford: Oxford University Press.

Cook, L., Iarskaia-Smirnova, E., Kozlov, V. (2022). Trying to reverse demographic decline: Pro-natalist and family policies in Russia, Poland, and Hungary. *Social Policy & Society*, 1-21.

Cooper, K., Stewart, K. (2021). Does Household Income Affect Children's Outcomes? A Systematic Review of the Evidence. *Child Ind Res* **14**, 981–1005.

Corak, M., Lietz, C., Sutherland, H. (2005). The impact of tax and transfer systems on children in the European Union. *Innocenti Working Paper No. 2005-04*. Florence, Italy: UNICEF Innocenti Research Centre.

Daly, M. (2011). What Adult Worker Model? A Critical Look at Recent Social Policy Reform in Europe from a Gender and Family Perspective. *Social Politics: International Studies in Gender, State & Society* 18(1), 1–23.

Daly, M., Ferragina, E. (2018). Family policy in high-income countries: Five decades of development. *Journal of European Social Policy*, 28(3), 255-270.

Daly, M., Rake, K. (2004). Gender and the welfare state. Cambridge: Polity Press.

Drago, R., Sawyer, K., Shreffler, K. M., Warren, D., & Wooden, M. (2011). Did Australia's baby bonus increase fertility intentions and births? *Population Research and Policy Review*, 30(3), 381-397.

Englich, B., Mussweiler, T., & Strack, F. (2006). Playing dice with criminal sentences: The influence of irrelevant anchors on experts' judicial decision making. *Personality and Social Psychology Bulletin*, 32(2), 188–200.

Epley, N., Keysar, B., Van Boven, L., & Gilovich, T. (2004). Perspective taking as egocentric anchoring and adjustment. *Journal of Personality and Social Psychology*, 87(3), 327-339.

Esping-Andersen, G. (1989). The three worlds of welfare capitalism. Cambridge: Polity Press.

Esping-Andersen, G. (2002). Why we need a new welfare state. Oxford: Oxford University Press.

Ferragina, E. (2022). Welfare state change as a double movement: Four decades of retrenchment and expansion in compensatory and employment-oriented policies across 21 high-income countries. *Journal of Social Policy and Administration*, 56 (5), 705-725.

Ferrarini, T., Nelson, K., & Höög, H. (2012). The fiscalization of child benefits in OECD countries. *GINI Discussion Paper*, 49. Amsterdam: AIOS (Institute for Advanced Labour Studies).

Figari, F., Paulus, A., & Sutherland, H. (2011). Measuring the size and impact of public cash support for children in cross-national perspective. *Social Science Computer Review*, 29(1), 85-102.

Fishbein, M., & Ajzen, I. (2010). Predicting and changing behavior: The reasoned action approach. New York: Psychology Press.

Frejka, T., & Gietel-Basten, S. (2016). Fertility and family policies in Central and Eastern Europe after 1990. *Comparative Population Studies*, 41(1), 3-56.

Gal, R., Medgyesi, M., & Vanhuysse, P. (2020). The transfer cost of parenthood: A national transfer accounts analysis for Europe. *National Transfer Accounts*.

Galinsky, A. D., & Mussweiler, T. (2001). First offers as anchors: The role of perspective-taking and negotiator focus. *Journal of Personality and Social Psychology*, 81(4), 657.

Gauthier, A. (1993). Towards renewed fears of population and family decline? *European Journal of Population/Revue Européenne de Démographie*, 9(2), 143–167.

Gauthier, A. (1996). The state and the family: A comparative analysis of family policies in industrialized countries. Clarendon Press Oxford.

Gauthier, A., & Hatzius, J. (1997). Family benefits and fertility: An econometric analysis. *Population Studies*, 51, 295-306.

Gentilini, U., Almenfi, M., & Orton, I. (2020). Social protection and jobs responses to COVID-19: A real-time review of country measures. Working Paper, March 27, 2020.

Gerson, M.-J. (1980). The lure of motherhood. *Psychology of Women Quarterly*.

Ghodsee, K. (2018). Why women have better sex under socialism. Pennsylvania: Vintage Books.

Guy, W., & Kovacz, M. (2006). EU-funded Roma programmes: Lessons from Hungary, Slovakia, and the Czech Republic. *Minority Rights Group International*.

Hariri, A.R., Brown, S.M., Williamson, D.E., Flory, J.D., de Wit, H., & Manuck, S.B. (2006). Preference for immediate over delayed rewards is associated with magnitude of ventral striatal activity. *Journal of Neuroscience*, 26(51), 13213-13217.

Harris, C., & Laibson, D. (2001). Dynamic choices of hyperbolic consumers. *Econometrica*, 69(4), 935-957.

Haskova, H., Marikova, H., Sloboda, Z., & Popisilova, K. (2022). Childlessness and barriers to gay parenthood in Czechia. *Social Inclusion*, 10(3).

Hemerijck, A. (2017). (Ed.). The uses of social investment. Oxford: Oxford University Press.

Hobson, F. (2022). The impact of the two-child limit in Universal Credit. *House of Commons Library*.

Huber, E., & Stephens, J. (2001). Development and crisis of the welfare state: Parties and policies in global markets. Chicago: The University of Chicago Press.

Inglot, T., Szikra, D., & Rat, C. (2022). Mother, families, or children?: Hungary, Poland, and Romania. University of Pittsburgh Press.

Javornik, J. (2016). Maternal employment in post-socialist countries: Understanding the implications of childcare policies. In T. Roosalu & D. Hofacker (Eds.), *Rethinking gender, work and care in a new Europe: Theorizing markets and societies in the post-post-socialist era* (pp. 189-214). Hampshire: Palgrave Macmillan.

Kahneman, D. (2011). Thinking, fast and slow. Farrar: Straus and Giroux.

Kamerman, S., & Kahn, A.J. (Eds.) (1978). Family policy: Government and families in fourteen countries. New York: Columbia University Press.

Kersbergen, K., & Vis, B. (2013). Comparative welfare state politics: Development, opportunities, and reform. Cambridge: Cambridge University Press.

Kotlikoff, L.J., & Burns, S. (2012). The clash of generations. Cambridge: MIT Press.

Langdridge, D., Sheeran, P., & Connolly, K. (2005). Understanding the reasons for parenthood. *Journal of Reproductive and Infant Psychology*, 23(2), 121-133.

Letablier, M.-T., Luci, A., Math, A., & Thevenon, O. (2009). The costs of raising children and the effectiveness of policies to support parenthood in European countries: A literature review. Brussels: European Commission.

Loewenstein, G., & Thaler, R.H. (1989). Anomalies: Intertemporal choice. *Journal of Economic Perspectives*, 3(4), 181-193.

Lvovskiy, L., & Akulava, M. (2019). FROGEE policy brief 1: Insights from Belarus. *Free Network Frogee*.

Marchal, S., & Van Lancker, W. (2019). The measurement of targeting design in complex welfare states: A proposal and empirical applications. *Social Indicators Research*, 143(2), 693-726.

Morel, N., Palme, J., & Palier, B. (Eds.) (2012). Towards a social investment welfare state? Ideas, policies, and challenges. Bristol: Policy Press.

Myrdal, A., & Myrdal, G. (1934). Kris i befolkningsfragan (Crisis in the population question). Stockholm: Bonnier.

Nakachi, M. (2022). Replacing the dead: The politics of reproduction in the postwar Soviet Union. Oxford University Press.

Nelson, K. (2006). The last resort: Determinants of the size of means-tested minimum income protection policies in welfare democracies. In E. Carroll & L. Ericsson (Eds.), *Welfare politics*

cross-examined: Eclecticist analytical perspectives on Sweden and on the developed world (pp. 85-116). Amsterdam: Aksel Atland Printers.

Nikitovic, V. (2022). Approaching regional depopulation in Serbia. In E. Manić, V. Nikitović, & P. Djurović (Eds.), *The geography of Serbia*. World Regional Geography Book Series. Springer, Cham.

OECD Family Database. (2021). Retrieved from https://www.oecd.org/els/family/database.htm.

OECD TaxBen Database. (2020). Retrieved from https://www.oecd.org/social/benefits-and-wages/.

Open Global Rights. (2021). Welfare caps: How the UK and Serbia became outliers in restricting child support. Retrieved from https://www.openglobalrights.org/welfare-caps-how-the-uk-and-serbia-became-outliers-in-restricting-child-support/.

Pavolini, E., & Van Lancker, W. (2018). The Matthew effect in childcare use: A matter of policies or preferences? *Journal of European Public Policy*, 25(6), 878-893.

Pendleton, B.F. (1978). An historical description and analysis of pronatalist policies in Italy, Germany, and Sweden. *Policy Science*, 9, 45–70.

Penne, T., Hufkens, T., Goedeme, T., & Storms, B. (2020). To what extent do welfare states compensate for the cost of children? The joint impact of taxes, benefits, and public goods and services. *Journal of European Social Policy*, 30(1), 79-94.

Pezer, M. (2022). Public policies supporting families with children across welfare regimes: An empirical assessment of six European countries. *Journal of European Social Policy*.

Philipov, D., Liefbroer, A.C., & Klobas, J. (Eds.) (2013). Reproductive decision-making in a macro-micro perspective. New York: Springer Nature.

Plavgo, I., & Hemerijck, A. (2020). The social investment litmus test: Family formation, employment, and poverty. *Journal of European Social Policy*, 1-15.

Popova, D. (2016). Distributional impacts of cash allowances for children: A microsimulation analysis for Russia and Europe. *Journal of European Social Policy*, 26(3), 248-267. https://doi.org/10.1177/0958928716645074.

Reader, M., Portes, J., & Patrick, R. (2022). Does cutting child benefits reduce fertility in larger families? Evidence from the UK's two-child limit. *Institute of Labor Economics*, 15203.

Salanauskaite, L., & Verbist, G. (2013). Is the neighbour's grass greener? Comparing family support in Lithuania and four other new member states. *Journal of European Social Policy*, 23(3), 315-331. https://doi.org/10.1177/0958928713480066.

Shiffman, J., Skrabalo, M., & Subotic, J. (2002). Reproductive rights and the state in Serbia and Croatia. *Social Science & Medicine*, 54(4), 625-642. https://doi.org/10.1016/S0277-9536(01)00134-4.

Simonson, I., & Drolet, A. (2004). Anchoring effects on consumers' willingness-to-pay and willingness-to-accept. *Journal of Consumer Research*, 31(3), 681-690.

Swank, D. (2005). Globalisation, domestic politics, and welfare state retrenchment in capitalist democracies. *Social Policy and Society*, 4(2), 183-95.

Szalma, I., Haskova, H., Olah, L., & Takacs, J. (2022). Fragile pronatalism and reproductive futures in European post-socialist contexts. *Social Inclusion*, 10(3), 82-86.

Tepe, M., & Vanhuysse, P. (2010). Elderly bias, new social risks, and social spending: Change and age in eight programmes across four worlds of welfare, 1980-2003. *Journal of European Social Policy*, 20(3), 217-34.

Togman, R. (2019). Nationalizing sex: Fertility, fear, and power. Oxford University Press.

United Nations. (2021). World population policies 2019: Highlights. Department of Economic and Social Affairs, Population Division.

Van Mechelen, N., & Bradshaw, J. (2013). Child poverty as a government priority: Child benefit packages for working families, 1992–2009. In I. Marx & K. Nelson (Eds.), *Minimum income protection in flux* (pp. 81-107). Palgrave Macmillan UK. https://doi.org/10.1057/9781137291844_4.

Wennemo, I. (1994). Sharing the costs of children: Studies on the development of family support in the OECD countries. Dissertation Series No. 25. Stockholm: Swedish Institute for Social Research.

Wilk, S. (2020). The role of family policy in solving demographic problems: Study of the Polish Program Family 500+. *European Journal of Sustainable Development*, 9(4), 84-92.

Xiaoling, A. (2015). The effects of cash transfer fertility incentives and parental leave benefits on fertility and labor supply: Evidence from two natural experiments. *Journal of Family and Economic Issues*, 36(2), 263-288.

Paper 2: From a Demographic Trend to a Policy Problem: The Framing of Low Fertility by Pronatalist Governments in North Macedonia and Serbia

Abstract

This paper examines the government discourses around low fertility in North Macedonia (2009) and Serbia (2018; 2022), which have introduced some of the largest (relative to income) pronatalist child benefit packages in modern European history. Contributing to the literature on the politics of ideas around demographic processes and post-materialism more broadly, the paper examines the articulation of low fertility as a policy problem through four discursive frames: (1) socioeconomic; (2) patriotic; (3) ethnic; (4) moral. Using the Frame Analysis method, it assesses the construction of these frames through the techniques of "frame amplification," "frame bridging," "frame extension," and "frame transformation".

The analysis includes 58 utterances of pronatalist government discourse derived from 22 discursive occasions (10,5 hours of material): parliamentary debates, government press conferences, and TV campaigns around the introduction and (in the case of Serbia) expansion of the benefit packages. It finds considerable evidence of socioeconomic and (especially) patriotic and moral framing of low fertility in both countries, but it only finds evidence of ethnic framing in Serbia. The dominance of the patriotic and moral frames in both countries suggests that their pronatalism is more rooted in post-materialist politics than in demographic realities. The paper postulates that the presence of the socioeconomic, patriotic, and moral frames in both countries might be due to the confluence of demographic decline, contested nation-building, and conservative ideology of ruling parties and (a majority of) citizens. The centrality of national anxieties and conservative values to broader societal norms in the two countries might also explain the dominance of the (less ambitious) discursive technique of "frame amplification". Finally, the variation on the ethnic frame implies that cross-country differences in party competition and interethnic relations might shape the nature of pronatalist discourse.

Key terms: low fertility, pronatalism, politics of ideas, post-materialism, frame analysis, North Macedonia, Serbia

Introduction

In recent decades, fertility rates have been falling dramatically across Europe, reaching levels well below the population replacement level of 2,1 children per woman. The rapid rate of population aging and decline has been accompanied by a growing embrace of pronatalism – "intentional government discourse and/or action directed at influencing the fertility rate of a given population upward" (Togman 2019: 3). According to the World Population Prospects database[46], 55 countries in the world (28%) declared themselves as pronatalist in 2019, up from 9% in 1976 (United Nations 2021: 5); almost half of them (27) are in Europe. However, the correlation between fertility declines and pronatalist government responses should not be mistaken for a causal – let alone "natural" – relationship.

First, this correlation, while strong, is far from perfect. As many as 16 European countries, some of which have been rejecting the very premise that governments should influence fertility in any direction (Gauthier 1996), do not declare themselves as pronatalist despite their sub-replacement fertility rates (United Nations 2021). Moreover, even when governments *do* embrace pronatalism in their discourse and/or policy, this often occurs decades after the fertility rate has fallen below replacement, and not necessarily when births are at their all-time-lowest level (Seeleib-Kaiser & Toivonen 2011), suggesting that pronatalism may not be a direct response to unfavourable demographic trends.

This paper thus treats pronatalism as a(n) (at least partly) constructed entity. It posits that the contested nature of the implications of low fertility for societies and individuals, as well as their complexity and potential unfamiliarity to the public, might require pronatalist policymakers to

[46]The database is compiled based on a survey filled out by governments around the world, usually through their social affairs ministries, health ministries, and/or national statistical offices. Among other questions, governments are asked to describe the current fertility rate in their countries (as too low, satisfactory, or too high), as well as their own policy orientation towards it (raise, no intervention, or lower). Other data points include national plans and strategies, programme reports, legislative documents, official statements, etc.

perform a discursive legitimisation of pronatalism as a political orientation and policy strategy. Accepting this premise opens numerous questions and guides this study to two particular ones: (1) What concerns about low fertility are articulated by pronatalist policymakers and through what discursive techniques?; (2) Under what socio-political conditions, if ever, might similar political parties use different discursive frames and techniques?

Discourse is commonly defined as "a set of subjective interpretations by language users of situations or events" (van Dijk 2006: 121). In its most famous application to policy – the discursive institutionalism paradigm (Schmidt 2008), it is typically divided into a coordinative discourse, where policy actors coordinate with each other regarding an *ongoing* policy-making process, and a communicative discourse, where political actors (who may or may not overlap with the policy actors above) seek to communicate to the public the necessity and appropriateness of *already-designed* policies (ibid: 7-8). This study is interested in the communicative discourse around pronatalism, as it seeks to illuminate the discursive manifestation of pronatalist orientations. Moreover, as pronatalism manifests itself primarily through the welfare state, this paper also seeks to contribute to the ongoing shift in the comparative welfare state literature toward a growing recognition of the importance of ideas and discourse (Beland 2005). Family policy is "a domain in which the politics of ideas and ideational change are particularly pronounced, as they relate to competing values about the social order of society, in terms of public and private responsibilities, gender roles, and the appropriate way to raise children" (Fleckenstein & Mohun Himmelweit 2023: 271).

Motivation and Justification

The starting point for this paper is the presupposition that pronatalist discourses may or may not contain references to any of the numerous socioeconomic rationales for pronatalism documented in the demography literature. As summarised compellingly by Gietel-Basten (2023: 5), these include counteracting shrinking labour supply to facilitate economic growth (Lee et al. 2014); mitigating the challenges to health and welfare systems (Lee & Mason 2012), minimising the growing emergence of sparsely populated areas (OECD 2022); maintaining cultural diversity

(Signes-Pont et al. 2022), and managing the provision of ecosystem services (Bruno et al. 2021) and infrastructure services, such as water (Hummel & Lux 2007) and transportation (Canzler 2008).

However, the political science literature invites the assumption that pronatalism might not be primarily framed in socioeconomic terms by its discursive proponents. In fact, one of the most pervasive trends in the politics of developed countries over the past few decades has been the rise of post-materialism (Fukuyama 2018). Broadly understood as a shift away from material concerns towards identity-based concerns, post-materialism has been linked to major recent political developments, such as Donald Trump's victory in the 2016 US presidential election (Sides et al. 2017) and the Brexit referendum (Pickup et al. 2021). This phenomenon encapsulates the growing salience of the cultural (liberal vs conservative) cleavage over the economic (redistributionist vs neoliberal) cleavage on the two-dimensional ideological axis as a driver of voting behaviour across contemporary Europe (e.g. Norris & Inglehart 2019; Hausermann 2020). If this broader political trend extends to pronatalism, then one might expect pronatalist discourses to be dominated by appeals to conservative considerations around an alleged national and cultural decline rather than by references to socioeconomic concerns around population aging.

This expectation is partly derived from Armitage (2021), who argues that "changes in the size, age structure, geographic distribution, or ethnic composition of populations are couched within the realm of demographic imaginaries". In these imaginaries, which Armitage also links to the more established social-science concept of "social imaginaries" (Taylor 2002), it is "[the] dominant political tropes [of the time], rather than purely technical considerations around demographic data, [that] are central to the creation and construction of a population crisis". Even in the demography literature, it is firmly recognised that the public (and especially government) discourse around depopulation "is very different from the scientific, neutral concept of population decline, as the [very] term evokes the language of war, devastation and destruction" (Gietel-Basten 2023: 5).

In line with its non-deterministic understanding of pronatalism as socially constructed, this paper proposes the following four sets of concerns which one might expect to encounter in the rhetoric of pronatalist policymakers: (1) socioeconomic; (2) patriotic; (3) ethnic; (4) moral.

Each of these sets of concerns might reveal a complex combination of policy challenges and political constructions. As posited by Armitage (2021), demographic imaginaries are not completely dissociated from reality; in fact, they are derived from palpable societal themes, which are evoked in the political discourse, where they then "expand and contract, shrink and amplify depending on the discursive objectives and they profoundly shape the logic underscoring policy enactment". This is perhaps most evident in the socioeconomic set, which includes the myriad of empirically measurable policy challenges associated with demographic change listed earlier. Yet, these challenges are often articulated in a form of demographic determinism, where socioeconomic challenges related to depopulation and population aging are portrayed as existential threats to societies, often in alarmist, highly pejorative and even ageist terms, such as "silver tsunami" (Calasanti, 2020; Lipp & Peine, 2022).

A similar, albeit more explicitly politicised, construction might be at play when it comes to *patriotic* concerns around low fertility. Shrinking populations, especially in politically contested areas of the world, raise a wide range of security questions. Yet, policymakers have been known to resort to elevate such questions to the "construction of an imperilled imagined community" (Armitage 2021), often through evocative language such as a "demographic time bomb" (Trimble 2013).

Framed in such terms, pronatalism can become a powerful tool of nation-building. Nation-building is the "process which leads to the formation of countries in which the citizens feel a sufficient amount of commonality of interests, goals and preferences so that they do not wish to separate from each other" (Alesina & Reich 2015; see also Deutsch & Foltz 2010). While nation-building is a broader societal process composed of both top-down and bottom-up components, government discourse is a key manifestation of the former. Of central importance to this study is the inherently ongoing nature of the nation-building process, as there is no endpoint to nation-building at which a given nation can be considered immune to future contestation. Famously

described by French political theorist Ernest Renan (1992; written in 1882) as a "daily plebiscite", nation-building is thus a process that requires perpetual (re)affirmation of its individual representatives' sense of belonging to the national collective, including potentially by having (more) children.

Probably the most explicit recent manifestation of such patriotic constructions of pronatalism has been the so-called "Great Replacement" narrative, or the "racist notion that Western elites are determined to replace whites by immigrants", which has been referenced as a pretext for political violence by nationalist terrorists in several Western countries (Ekman 2022; Obaidi et al. 2022). As such rhetoric has been known to be deployed against other nations as well as against non-majority ethnic groups within countries (Gietel-Basten 2023), we propose a distinction between the aforementioned patriotic concerns around low fertility and a (similar yet ultimately distinct) set of *ethnic* concerns.

Finally, as pronatalist rhetoric is often "intertwined with very specific ideas around women's roles and a perceived collapse of the traditional family" (Armitage 2021; but also Toft 2022 and her similarly developed framework around "wombfare"), we also propose a *moral* set of concerns. Here, childbearing and parenthood are celebrated as a key component of a traditional and morally "right" way of life in and of themselves, rather than as a pragmatic means of mitigating any of the remaining three sets of concerns.

Analytical Framework

In line with its understanding of pronatalism as at least in part socially constructed, the paper focuses on countries which have been undergoing palpable demographic change *and* the types of political processes that one might expect to yield (some of) the four sets of concerns and associated constructions around low fertility proposed earlier.

One particularly strong location for such case studies is Eastern Europe. Over the past three decades, this region has mostly been studied in the social and family policy literature through the notion of "re-traditionalisation" (Hantrais 2004; Javornik 2016; Simic & Simic 2019). Re-

traditionalisation refers to the perceived shift in societal norms since the collapse of socialism in the late 1980s and early 1990s, which are (perhaps paradoxically) deemed to have moved in a more traditional direction in recent decades, partly due to the abandonment of atheism as a state doctrine and renewed embrace of religion in societies with high (pre-socialist) historical rates of religious belief (Kornai 2015; Krastev 2016; Grzymala-Busse 2017). In terms of social and family policy, re-traditionalisation has led to the familialistic dismantlement of some signature socialist legacies such as high female labour force participation and free public childcare (Ghodsee 2018; Shiffman et al. 2002), partly through an increasing reliance on long maternity leave, with serious negative implications for gender equality (Dobrotic et al. 2013).

Demography has played an important role in this shift, although there is some debate around whether pronatalism has constituted a driver or a by-product of re-traditionalisation (Haskova et al. 2022; Szalma et al. 2022). In any case, demographic change has been both considerable and particularly rapid in this region, as low fertility rates have been compounded by high rates of emigration (Frejka & Gietel-Basten 2016; Sobotka 2017), all against the backdrop of a comprehensive socio-political transition from socialism and authoritarianism to market economy and democracy (Vanhuysse 2006; 2009; Orenstein 2008; Hanley 2013).

Within this region, the case selection was aimed at identifying countries: (1) which declare themselves as pronatalist; (2) which have introduced explicitly pronatalist policies which have emerged as prominent in the political discourse; (3) whose populations are declining and aging at a fast rate; (4) whose nation-building processes are highly contested; (5) whose predominant societal norms are traditional; (6) whose pronatalist discourse is relatively understudied. All six criteria are met by North Macedonia and Serbia, with North Macedonia announcing its pronatalist child benefit package in 2009 and discontinuing it in 2018, and Serbia introducing a similar and ongoing policy in 2018. What follows is an overview of pronatalist politics and policy in the two countries and the rationale for conducting a comparative rather than a single-case study.

Overview of pronatalist policy and politics in North Macedonia

Between 2006 and 2017, North Macedonia was governed by the conservative party VMRO-DPMNE (Internal Macedonian Revolutionary Organisation – Democratic Party for Macedonian National Unity). In 2009, the VMRO-DPMNE-led government introduced its Third Child Policy, a monthly child benefit of about 8500 Macedonian denar (EUR 140)[47] for each third and fourth child born after the introduction of the policy on May 1, 2009 (Gerovska-Mitev 2019). This was the first (and to this day only) explicitly pronatalist policy intervention in the history of the country. The Third Child Policy benefit was issued irrespective of household income from the birth of the child until the age of 10. At the time of the introduction of the policy and throughout its implementation, the national fertility rate hovered between 1,5 and 1,6 (Macedonian Statistics Agency 2022). North Macedonia is a net emigration country, having lost an estimated 32% of its population to emigration since independence in 1991 (Petreski 2021: 12), with limited gains in immigration. The natural population growth rate (fertility minus mortality) was still mildly positive between 2009 and 2018, but if one takes migration trends into account, North Macedonia's population was already shrinking rapidly.

Politically, VMRO-DPMNE was the largest member of a coalition government in the country's parliamentary system. Its junior coalition partner during the period of interest, the Democratic Union for Integration (DUI), represented the country's ethnic Albanian minority (about 25% of the population). Ethnic relations were fragile, with a limited armed conflict having occurred between the national army and Albanian paramilitary units in 2001. Crucially, the Third Child Policy was initially proposed by VMRO-DPMNE only for municipalities with fertility levels below 2,1, which was perceived as a deliberate attempt to exclude Albanian-majority municipalities. Only after the Constitutional Court deemed its original design to be unconstitutional was the policy expanded to the entire country (Gerovska-Mitev 2019). North Macedonia used to be part of the Socialist Federal Republic of Yugoslavia and became an independent country in 1991. During the period of interest, it was not a member of either NATO or the European Union but had expressed the desire to join both organisations. In addition to the lack of either a clear

[47]The benefit size was indexed for inflation and therefore changed over the duration of the policy.

geopolitical course or a long tradition of statehood, North Macedonia's nation-building process was additionally complicated by its (now-resolved) naming dispute with neighbouring Greece[48].

The Third Child Policy occupied an important role in the official rhetoric of the VMRO-DPMNE-led government. The policy featured heavily in speeches, interviews, parliamentary debates, and the tailormade nine-episode, government-funded TV campaign "Family and Children Are Our Biggest Treasure" aired in 2009. The Third Child Policy, as well as the broader pronatalist orientation of the government, were most commonly associated with Prime Minister Nikola Gruevski and the ultra-conservative Member of Parliament Vlatko Gjorchev.

Overview of pronatalist policy and politics in Serbia

Since 2012, Serbia has been governed by the conservative party SNS (Srpska Napredna Stranka), first as a junior coalition member and then as a senior coalition member since 2014. Like North Macedonia, Serbia used to be part of socialist Yugoslavia and did not become completely independent until 2006 (Gordy 2013). It has a parliamentary political system where the president has a largely ceremonial role. Yet, President Aleksandar Vucic, who has been in office since 2017 after previously serving as Prime Minister, is widely perceived as the most powerful (and increasingly authoritarian) political actor in the country (Pavlovic 2020). Like North Macedonia, Serbia is characterised by a recent history of ethnic-based violence during the Yugoslav Wars of the 1990s. In 2008, the Albanian-majority province of Kosovo seceded from Serbia and has been recognised as an independent state by most of the international community, although not by Serbia, which also contains minority ethnic groups (mostly Albanian and Romani) within its borders, whose birth rates have traditionally been higher than those of the ethnic Serb majority (Shiffman et al. 2002).

The first pronatalist strategy in Serbia was adopted by a centre-left governing coalition in 2008 (Suli 2022) and encompassed various policies such as subsidised childcare and housing loans.

[48]The resolution to the naming dispute in 2018 led to the country's current name, North Macedonia. During the period of interest to this research, the country was internationally known as The Former Yugoslav Republic of Macedonia (FYROM), but the then-constitutional name, Republic of Macedonia, was also used domestically and in bilateral relations with some countries.

However, despite the lack of a formal strategy, pronatalism had featured strongly on the political agenda already during the wartime period in the 1990s. During this time, pronatalism was framed in an explicitly conservative fashion, as women were portrayed in the political discourse as "mothers of the nation" (Andjelkovic 1998) with a responsibility to "reproduce and renew the Serbian nation". In any case, pronatalist policy interventions before SNS rose to power had been characterised by limited financial commitment and flawed implementation.

The first iteration of pronatalist policy by SNS, on the other hand, was introduced in April 2018. It consisted of a considerable expansion of the national child benefit system, with the size of the monthly payments being increased to USD 104 for second children, USD 124 for third children, and USD 186 for fourth children. The benefits are issued from birth until the age of 2 for second children and from birth until the age of 10 for third and fourth children. The second iteration of pronatalist policy was introduced in March 2022 and consisted of a threefold increase in the one-off birth grant for first children from USD 1000 to USD 3000 (for first children, no *monthly* support is available). Both iterations are issued irrespective of household income. Like that of North Macedonia, Serbia's fertility rate has long fallen below replacement, hovering around 1,5 children per woman since 2018. The country has also been experiencing high net emigration (Serbian Statistical Agency 2022).

The policies of interest have been formally classified as pronatalist (like in North Macedonia) and have been administered by the Ministry of Family Affairs and Demography, which was established with an explicitly pronatalist mandate in 2020 (unlike in North Macedonia, where they fell under the remit of the Ministry of Labour and Social Welfare). Pronatalism and low fertility more broadly, as well as the policies of interest more specifically, have been discussed most often by President Vucic and Family Affairs and former Demography Minister Ratko Dmitrovic, and have featured heavily in speeches, interviews, parliamentary debates on the topic, as well as the six-episode TV campaign "Births Now". A noteworthy fact is that the SNS-led government coalition between 2020 and 2022 was named For Our Children (*Za nasu decu*).

As shown in this overview of pronatalism in North Macedonia and Serbia, their relevant policy and political landscapes are quite similar. However, there is one crucial difference relating to the

type of party competition at play, which motivates this comparative research design.

The importance of party competition for the adoption and/or the discursive representation of policy is well-documented in the political science literature (Kitschelt 2001; Albright 2010; Krause et al. 2023), which has studied the ways policymakers and parties adapt their positions strategically, depending on the positions of their rivals. In family policy, of particular interest to this study is the work by Schwander (2018) testing the effects of party competition on party positioning with regard to family policy in Western Europe. Focusing on centre-right parties, Schwander has found that their family policies and ideas are more likely to converge with those of centre-left parties in the absence of a meaningful *far-right* challenger, since they hold an effective monopoly on the right-wing vote, as was the case in Germany in the early 21st century. Conversely, in the presence of such a challenger, centre-right parties seem to double down on conservative family policies and ideas in an effort to preserve their electoral support among right-wing voters, as has generally been the case in France.

This paper thus posits that party competition might also influence the discursive representation of low fertility. The contrasting party competition patterns at play in North Macedonia and Serbia during the periods of interest provide a fertile ground for testing this expectation. As stated above, during the period of interest, VMRO-DPMNE was in a coalition with the ethnic Albanian party DUI. In North Macedonia's multi-ethnic system of government, the presence of an Albanian coalition partner is mandated by the constitution, making collaboration with DUI a *sine qua non* for VMRO-DPMNE's continued rule despite VMRO-DPMNE's comfortable advantage ahead of other ethnic Macedonian parties. Thus, VMRO-DPMNE might have perceived the need to avoid any hostile rhetoric towards ethnic Albanians to maintain functional intragovernmental relations, including in the context of pronatalism, which might affect the presence of ethnic framing in VMRO-DPMNE's pronatalist discourse.

By contrast, SNS did not face any similar constraints in Serbia, as ethnic Albanians in Kosovo have not participated in Serbian political institutions after Kosovo's unilateral independence in 2008,

while other ethnic minorities have been firmly co-opted by SNS as its loyal pre-electoral coalition partners. Moreover, SNS's Serbian coalition partner, the Socialist Party of Serbia (SPS) has also proven extremely loyal to SNS, providing the party with a comfortable governing majority throughout the period of interest (ibid). However, the Serbian political system has included the far-right party Dveri, which has made pronatalism one of its cornerstones, referring to low fertility as "the white plague" and "Serbia's biggest national issue"[49], while calling upon SNS to expand its pronatalist policies even further[50]. The far-right pressure from Dveri might have prompted SNS to embrace the ethnic frame more strongly than it otherwise would have. By contrast, North Macedonia's parliament did not include any parties with more conservative views than VMRO-DPMNE during the period of interest.

The nature of these two country cases warrants a most-similar-systems comparative research design, which tests whether these two otherwise similar countries (in terms of their shared Yugoslav history, similar post-socialist transition, conservative ruling parties, and interethnic tension) might yield similar framings of low fertility, given that the only relevant difference between them might relate to their party competition patterns. This comparative setup also enables an analysis of the discursive techniques adopted by policymakers in articulating said framings, with the aforementioned (predominantly) similar socio-political context in the two countries inviting the expectation of similar results also by this metric. The favourable sociocultural norms for conservative framings of any policy or political issue, including pronatalism, in both countries (Jovanovic 2019; Vangelov 2019; Gjuzelov & Hadjievska 2020; Vulovic 2022) might enable policymakers to achieve their discursive objectives even with relatively straightforward techniques. Thus, one might not expect the adoption of ambitious and/or far-reaching discursive frames in either country, as these might carry political risks without bringing obvious political benefits, with the sensitivity of North Macedonia's interethnic

[49]https://dveri.rs/konferencije-za-medije/bosko-obradovic-vlast-je-konacno-shvatila-da-su-dveri-sve-vreme-u-pravu "Bosko Obradovic: The Government Has Finally Realised We Were Right All Along". Dveri.rs. March 19, 2018. (Last accessed: December 12, 2022)

[50]https://dveri.rs/izjave/bosko-obradovic-a-sta-je-sa-pravima-trudnica-i-porodilja-u-srbiji "Bosko Obradovic: What about the Rights of Pregnant Women and Recent Mothers in Serbia?" September 17, 2018. (Last accessed: December 12, 2022)

society (and associated political coalitions) potentially warranting additional rhetorical restraint.

Data and Methods

To analyse pronatalist government discourse in North Macedonia and Serbia, we use the qualitative method of Frame Analysis (Goffman 1974; Snow et al. 1986; Snow & Benford 1988; Beland 2005; Lindekilde 2014; see Cox 2001 for applications to social policy). While less commonly used than its more traditional alternative for examining social and political discourse, Critical Discourse Analysis (CDA) (e.g. van Dijk 2006), Frame Analysis is better suited to our research objectives. This is because Frame Analysis assumes a high level of strategic rationality among the discursive actors of interest (Lindekilde 2014: 224), therefore lending itself particularly well to an analysis of the way in which pronatalist government officials with a vested interest in legitimising pronatalist policies portray said policies, or the way in which policymakers transform references to the challenges associated with demographic change into value judgements on demographic "problems" (Gietel-Basten 2023). Specifically, Frame Analysis sheds light on "how particular ideas/ideologies are used deliberately to mobilise supporters and demobilise adversaries vis-à-vis a particular goal" (Snow & Benford 1988: 206). Thus, "frames [themselves] are not policy ideas: they constitute a discourse that helps political actors sell policy choices to the public" (Beland 2005: 12), which makes them particularly well-suited to an analysis of the communicative discourse around already-designed policies. Finally, in contrast to some other discourse-based methods, Frame Analysis has been specifically developed for social science research.

Frame Analysis distinguishes between four framing *techniques* ("frame amplification," "frame bridging," "frame extension", and "frame transformation"), which are listed here in ascending order of ambitiousness of the framing process (Snow et al. 1986). Frame amplification denotes "the clarification and invigoration of an interpretive frame that bears on a particular issue, problem, or set of events" (ibid, 469). It typically refers to discursive actors offering a selective interpretation of the topic at hand or strongly highlighting said interpretation over other possible

interpretations. Frame bridging constitutes the "linkage of two or more ideologically congruent but structurally unconnected frames regarding a particular issue or problem" (ibid, 467). It typically involves linking an evident manifestation or implication of the topic at hand to an event that is unrelated to said topic yet is deemed to resonate in a similar fashion, to a similar audience, and more strongly than the topic at hand. Frame extensions encompass "an effort to incorporate participants by extending the boundaries of the proposed frame to include or encompass the views, interests, or sentiments of targeted groups" (Lindekilde 2014: 208), thus broadening the range of audience members to whom the proposed frame might appeal. Finally, frame transformation is typically required when the proposed frames "may not resonate with, and on occasion may even appear antithetical to, conventional lifestyles or rituals and extant interpretive frames" (Snow et al. 1986, 473). In line with the literature (Snow & Benford 1986; Lindekinde 2014), we expect frame amplification and frame bridging to occur more often than frame extension and frame transformation, as the latter two techniques require a more complex framing process, which in turn carries a larger risk of being perceived as dishonest, or at least not being understood in the intended fashion, by the target audience.

The full data used in the analysis is outlined in Appendix 2.1, which consists of 26 utterances of relevant discursive material in North Macedonia and 32 utterances in Serbia. The data mirrors the somewhat cyclical public attention to low fertility and pronatalism in our two countries, with all 58 utterances dating back to specific milestones around the introduction and (in the case of Serbia) expansion of the pronatalist policies of interest. Of the two types of discourse identified earlier (Schmidt 2008), the analysis here is limited to the communicative discourse around the already-designed pronatalist policies in the two countries. This is because it has been well-documented that the ruling parties at the time of interest in both countries governed in a top-down fashion with limited public debate and in a considerably controlled media space (Jovanovic 2019; Gjuzelov & Hadjievska 2020), echoing also Schmidt's preference for examinations of communicative discourse in "weaker polities", i.e. less consolidated democracies (2008). A strong illustration of the lack of public debate is the fact that, in both countries, the government press conferences announcing the policies had taken place *before* the relevant parliamentary debates (as indicated in Appendix 2.1 below). The formal adoption of the policy did not seem to depend

on the outcome of the parliamentary debates, as the two ruling parties already possessed the parliamentary majority necessary for passing the policies, with MPs in the two countries almost always voting along party lines.

The four frames of interest are formulated in line with the four sets of concerns commonly associated with pronatalism in the academic literature summarised earlier. The resulting set of frames provides a comprehensive classification (in terms of our research question) of the discursive material into distinct yet not always mutually exclusive categories, mirroring the sometimes-overlapping nature of pronatalist concerns and in line with the mutually interactive relationship of the frames inherent to the Frame Analysis method (Snow & Benford 1986).

To ensure a meaningful comparison, the analysis encompasses the same three types of discursive *occasions* in both countries (totalling 10,5 hours of material): (1) government press conferences; (2) parliamentary debates (with an exclusive focus on speeches delivered by MPs from the ruling party); and (3) government media campaigns[51]. The resulting combination of discursive material from policy and political actors in the executive (in (1), (3) and to a lesser extent (2)) and legislative branches of government (in (2)) ensures a wide representation of discursive voices. The 58 *utterances* in the analysis refer to distinct references produced by the discursive actors of interest through one of the three types of discursive occasions and during the aforementioned policy milestones of interest. Thus, multiple utterances by the same actor produced on the same occasion, such as for instance multiple interventions during a parliamentary debate spread in between interventions from other discursive actors, are counted as separate utterances (as indicated in Appendix 2.1). In Serbia, the pronatalist government discourse in the period of interest was dominated by members of the executive government, with President Aleksandar

[51]In line with the cyclical nature of pronatalist discourse given the non-centrality of pronatalism as a policy and political issue, whose salience is typically dependent on specific policy announcements, these three types of occasions were identified as the most appropriate ones. The transcripts of the relevant government press conferences and parliamentary sessions (detailed in Appendix 2.1) were retrieved from the official government and parliamentary websites of the two countries, using the search terms "demography" (*демографија*), "pronatalist" (*пронаталитетски; пронатални*), "fertility" (*наталитет*), "child benefits" (*детски додатоци; дечји додаци*), "financial support for parents" (*финансиска поддршка за родители; финансијска подршка родитељима*), "Third Child" (*трето дете*; only for North Macedonia), and "Parental Allowance" (*родитељски додаци*; only for Serbia) in the respective local languages. The collected material encompasses all government press conferences and parliamentary sessions (in their entirety) ahead of the adoption of a pronatalist child benefit package (in both countries) and its expansion (in the case of Serbia). The media campaigns in the local languages (accessed from the YouTube channels stated in Appendix 2.1) were watched in full for the purposes of the analysis.

Vucic and Minister Ratko Dmitrovic making guest appearances at parliamentary debates beyond their participation in government press conferences on the topic. North Macedonia's parliamentary debates on the topic, by contrast, did not include members of the executive government. However, all three discursive occasions of interest were considered and thus analysed in both countries.

While the results of the analysis encompass the entire data sample, only 11 (5 for North Macedonia and 6 for Serbia) of the 58 utterances are quoted directly in the (next section of the) paper due to space constraints. These utterances are highlighted as the most illustrative of their respective frames for each country. The entire discursive material of interest was produced by the discursive actors in the local languages (Macedonian and Serbian respectively) and all quotes in the next section are presented in translation.

Results

This section presents a selection of the obtained results under the *four frames of low fertility: (1) socioeconomic; (2) patriotic; (3) ethnic; and (4) moral*. Under the socioeconomic frame, one can observe rhetoric on the effects of population aging on economic growth, pension systems, healthcare systems, and other related challenges. The patriotic frame consists of concerns about the decline of the overall population size and the (perceived) cultural erosion that would ensue from it. The ethnic frame complements the patriotic frame in these highly ethnically polarised societies and refers to the relative decline in the size of the dominant ethnic group with respect to one or more minority ethnic groups. Finally, the moral frame encompasses depictions of childbearing and parenthood as ends in themselves, rather than as a means of mitigating the concerns articulated under the three remaining frames.

In both countries, the four frames are rather broadly conceived. For instance, economic growth and the stability of the national healthcare system are somewhat different policy issues, yet they are framed by the discursive actors under the same broad umbrella of (alleged) implications of low fertility for the material well-being of individuals and societies, and have thus been

categorised under the same (socioeconomic) frame. Similarly, the depictions of childbearing and parenthood as ends in itself can be (and indeed are) formulated with explicitly religious underpinnings *or* in completely secular terms. Yet, any moral concerns about low fertility must be framed through a common overarching conception of childbearing as morally virtuous *per se*, i.e. irrespective of its potential collective (socioeconomic, patriotic, or ethnic) implications.

As illustrated in Appendix 2.2, all 58 discursive utterances of interest contain an example of at least one of the four frames. This means that the relevant discursive actor makes a reference to at least one of these four sets of concerns about low fertility during the relevant discursive occasion (e.g. MD1a: Member of Parliament Silvana Boneva during the April 13, 2019 parliamentary session (as per Appendix 2.1)). As the four sets of concerns about low fertility are not mutually exclusive, some of the 58 utterances include references to more than one of the four frames, hence the higher total number of frame references (80) than discursive utterances (58) in tables 2.1 and 2.2 in the discussion section later.

However, while the frames are therefore not always fully distinct from one another, they do encompass the full spectrum of concerns articulated with regard to low fertility in this research design. This means that the final analytical sample does not contain any concern about low fertility that does not relate to one or more of the four frames. Importantly, this is not meant to suggest that *everything* that is said by the discursive actors in the utterances (let alone in the 22 discursive occasions as a whole) can be captured under the four frames, as said utterances also contain content that is not relevant to our research questions. Apart from the articulation of concerns about low fertility, which is by far the most common type of content in the material and is fully captured by the four frames, the discursive actors at times express their views also on the alleged reasons for the current fertility levels, their expectations about the effectiveness of pronatalist policy, and the alleged non-pronatalist (e.g. redistributive) gains of the child benefits provided (albeit in very marginal quantity). However, such content is beyond the scope here, as it does not provide additional insight into the concerns articulated by policymakers with regards to low fertility or into their discursive justification of their pronatalist orientation.

The remainder of this section presents the content observed under each of the four frames in both countries. The full findings are presented in tables 2.1 and 2.2 below.

Table 2.1: Overview of the four frames of low fertility in North Macedonia

Type of discursive actor	*Country*	*Number of discursive utterances*	*Number of frame references*	*Socio-economic*	*Patriotic*	*Ethnic*	*Moral*
Executive government	Prime Minister Nikola Gruevski	**3**	**4**	**2**	**1**	**0**	**1**
Legislative government	Member of Parliament Silvana Boneva	2	2	2	0	0	0
	Member of Parliament Vlatko Gjorchev	3	4	1	2	0	1
	Member of Parliament Ilija Dimovski	4	5	0	2	0	3
	Member of Parliament Marjan Ristovski	2	3	0	2	0	1
	Member of Parliament Nikola Petkovski	3	3	0	2	0	1
Legislative government (TOTAL)		**14**	**17**	**3**	**8**	**0**	**6**
Ruling party as a whole (TV campaigns)	N/A	**9**	**12**	**4**	**4**	**0**	**4**
TOTAL		**26**	**33**	**9**	**13**	**0**	**11**

Table 2.2: Overview of the four frames of low fertility in Serbia

Type of discursive actor	*Country*	*Number of discursive utterances*	*Number of frame references*	*Socio-economic*	*Patriotic*	*Ethnic*	*Moral*
Executive government	President Aleksandar Vucic	7	9	2	2	3	2
	Prime Minister Ana Brnabic	2	3	0	1	1	1
	Minister of Family Affairs Ratko Dmitrovic	7	10	2	3	3	2
	Minister of Finance Sinisa Mali	2	3	1	0	1	1
Executive government (TOTAL)	**18**		**25**	**5**	**5**	**5**	**6**
Legislative government	Member of Parliament Srbislav Filipovic	4	7	2	2	1	2
	Member of Parliament Nebojsa Bakarec	2	2	0	1	0	1
	Member of Parliament Samir Tandir	2	3	0	1	2	0
Legislative government (TOTAL)	**8**		**12**	**2**	**4**	**3**	**3**
Ruling party as a whole (TV campaigns)	N/A	**6**	**10**	**2**	**3**	**1**	**4**
TOTAL		**32**	**47**	**9**	**13**	**12**	**13**

The socioeconomic frame of low fertility

Socioeconomic concerns around low fertility generally play a clear yet non-dominant role in the pronatalist government discourses in both countries. Insofar as they are present, however, they are mostly expressed through frame amplification. For example, at the government press conference introducing the policy, Macedonian Prime Minister Nikola Gruevski says:

"(…) Low fertility carries the risk of less growth and investment and all sorts of implications in areas such as healthcare, education, pensions… you name it." (MC1a.; February 2009)[52]

Here, Gruevski alleges a number of (implicitly negative) socioeconomic consequences of low fertility. He amplifies the socioeconomic frame by clarifying the exact societal domains that (he believes) would suffer from a continuation of low fertility trends, but he also exercises some caution in his rhetoric. He uses qualifiers such as "carries the risk" (instead of more definitive language, such as for instance, "will cause") and the relatively neutral term "implication".

In Serbia, the socioeconomic frame is similarly marginal compared to the other three frames. President Aleksandar Vucic amplifies this frame on several occasions (SC2a.; SD2b.), including at the government press conference announcing the policy:

"(…) If our births stay low, we will have to bring in waiters from developed countries, and we already have a shortage of plumbers and mechanics" (SC1a.; February 2018)

Unlike Gruevski in North Macedonia, who merely alleges several broader implications of low fertility, Vucic highlights a specific consequence of low fertility, albeit one that will presumably only be necessary if the pronatalist child benefits do not increase births in the meantime. Vucic's language is more explicit than Gruevski's ("*will* have to bring") but nonetheless stops short of a frame extension that would cast low fertility as a threat to the entire population; in fact, one is unsure from such statements whether Vucic necessarily views the potential importation of foreign workers as an undesirable event (either for specific individuals or for the entire population).

[52]All notations in brackets refer to Appendix 2.1.

The patriotic frame of low fertility

Patriotic concerns around low fertility are relatively common in both countries, with pronatalism being framed as essential to the survival of the nation.

During a parliamentary debate on the expansion of the policy in Serbia, Minister of Family Affairs Ratko Dmitrovic amplifies the patriotic frame by casting population decline as a core threat to the Serbian nation. By describing low fertility as "the problem that overshadows all other problems" and positing that Serbs are "disappearing at the speed of light" (SD2a.; February 2022), Dmitrovic provides a heightened representation of an otherwise real demographic trend. Finally, in this type of rhetoric, echoed also by Minister of Finance Sinisa Mali (SD2d.; February 2022), the undesirable character of the potential disappearance of the nation is portrayed as obvious, with no additional discursive effort being made to articulate why any individual representative of said nation should be concerned about this possibility.

The articulation of low fertility as a disproportionately grave threat to his nation is also expressed by Prime Minister Gruevski in North Macedonia. At the announcement of the policy, Gruevski amplifies the patriotic frame by contrasting North Macedonia's demographic trends to those in Western Europe:

"People are having fewer kids almost everywhere. But don't worry about the French and the Germans. They can always make up for it by getting more people from abroad, not least from our part of the world. Worry about our nation, which is losing people left and right." (MC1a.; February 2009)

Like Vucic, Gruevski does not specify why population decline, even if it is indeed more rapid in North Macedonia than in many other countries, should be considered problematic. Yet, by painting low fertility *and* national decline as worrisome trends, he sets the rhetorical stage for more evocative patriotic framing of low fertility in the aforementioned TV campaign "Family and Children Are Our Biggest Treasure" aired in 2009. An episode titled "Family Album" episode features an elderly gentleman sifting through a family album. He then points to pictures of his great-grandmother and admires her for "hav[ing] four children during Ottoman times, when she took food out of her own mouth to feed them." (MT1.) The episode links the declining size of the

Macedonian nation to the "ideologically congruent yet structurally unconnected" (Snow et al. 1986, 147) topic of the experiences of Macedonians during the Ottoman occupation. Thus, it bridges low fertility, which may or may not be perceived as concerning by the audience, to a well-known historical injustice, presumably to create a mental connection between the former and the latter, which can be expected to inspire a set of negative emotions in the target audience.

The ethnic frame of low fertility

Ethnic concerns around low fertility are relatively common in Serbia yet completely absent in North Macedonia. We propose some potential reasons for this in the discussion section later.

Most of the Serbian rhetoric in our sample reveals an ethnic-based conception of the Serbian nation as synonymous with the largest (and homonymous) ethnic group in it. On one occasion, Minister Dmitrovic acknowledges this (otherwise usually implicit) conflation by saying that "with all due respect to other ethnicities, I will only be talking [in his parliamentary address] about [ethnic] Serbs, the biggest ethnic group in our country." (SC2b.; February 2018) President Vucic has also made an explicit effort to differentiate between patriotic and ethnic concerns around low fertility by arguing that population decline is not an ethnically neutral phenomenon:

"(…) Let's remember that most refugees in the history of the world have been and will be Muslim, and that would not be a problem for us [Serbs] if we were more open-minded, but history has shown us that we are not." (SC2a.; January 2022)

"(…) Look at Angela Merkel. There's a reason why she is the greatest statesperson in the world. If she waits for Germans to have more children, it will never happen. Instead, she has solved population aging by opening the door to foreigners. But our people, for reasons unknown to me, aren't ready [for Serbia] to do that" (SC2a.; January 2022)

By acknowledging the ethnic dimension to patriotic concerns, Vucic is bridging the two frames, while nonetheless stopping short from merging them fully into one. Vucic's patriotic framing is not corroborated by references to any *specific* downsides to a declining population. He provides one such potential downside (the falling number of ethnic Serbs at the expense of other

ethnicities within and (presumably especially) outside Serbia), but he also explicitly distances himself from it by attributing it to xenophobic attitudes among the population ["our people aren't ready"], rather than to a personal ideological preference.

The moral frame of low fertility

Moral concerns around low fertility are relatively common in both countries. In North Macedonia, they are the most prominent in the "Family and Children Are Our Biggest Treasure" media campaign, which amplifies the moral frame in several rather distinct ways. In an episode titled "Professional Woman with Four Children", a real-life female cardiologist recounts her experience of having four children. Her conclusion is that "no amount of success in life is complete without children" (MT3.), casting childbearing as a fundamental prerequisite for individual happiness. This instance of moral framing also contains an implicit bridge towards traditional gender norms, as the main character is female (and no similar episode exists with a male main character). Conveyed through the lens of a woman, the message might have been expected to resonate with the viewer better through the (unstated) assumption that women are (particularly) likely to derive a sense of fulfilment from parenthood, while being unlikely to derive it solely from their professional success. Another example is the episode "The Lives of Two Families", which follows the lives of two married couples and contrasts their childbearing decisions. While the first couple conceive their first child immediately after their wedding and go on to have another three children and multiple grandchildren, the second couple prioritise their professional careers, only to end up alone and despondent at old age (MT 2.). Once again, the message is that childbearing is a precondition for long-term happiness as well as for a healthy relationship with one's partner.

In Serbia, too, the moral frame is constructed in several distinct ways, although bridging and extension emerged as more commonly used framing techniques than (mere) amplification. For instance, Member of Parliament Filipovic asks the following rhetorical questions: "If you have no children, who is going to take care of you when you are 50 or 60? Who is going to bring you your medication?" (SD2c.; February 2022), thus amplifying the moral frame by casting childbearing as

a responsibility towards oneself. Moreover, an episode of the media campaign "Births Now" titled "The Things That Matter in Life" includes the following message:

"Let's think about our ancestors who had multiple children under much more dire circumstances: world wars, Balkan wars. They didn't live for the latest iPhone series or brand of shoes; they lived for the sound of a baby crying." (ST1.)

Here, the moral frame is bridged with the patriotic frame by using the childbearing preferences of past Serbian generations to foster a sense of guilt about childlessness among Serbs today. Different iterations of the depiction of childlessness as antithetical to a morally virtuous life can also be observed in another two episodes of the campaign (ST3; ST5).

Discussion and Limitations

The analysis of 26 discursive utterances in North Macedonia and 32 utterances in Serbia has revealed four distinct (yet not necessarily mutually exclusive) frames of low fertility in Serbia and three in North Macedonia. The socioeconomic, patriotic, moral, and (in the case of Serbia) ethnic frames of low fertility were constructed through frame amplification, bridging, and extension (albeit not through frame transformation). Through all these frames, pronatalist policymakers sought to portray low fertility as an extraordinary problem calling for extraordinary policy solutions, thus (explicitly on some occasions and implicitly on others) providing discursive justification for the introduction, preservation, and (in the case of Serbia) expansion of pronatalist child benefits. The claims advanced in the rest of this section refer to both countries unless otherwise specified.

Across the four frames, the analysis found sizeable evidence in both countries of three of the four framing techniques examined. Frame amplification was employed by policymakers in both countries, as the demographic reality of low fertility and associated concerns about it were often cast in a dramatic and heightened yet vague and empirically uncorroborated fashion ("all sorts of implications" (MC1a.); "losing people left and right" (MC1a.); "at the speed of light" (SD2a.)). Frame bridging was also relatively common, including between two of the four frames

themselves (i.e., patriotic + ethnic, patriotic + moral). Patriotic concerns about pronatalism were often articulated in ethnocentric terms, as the future of the nation was (implicitly or explicitly) equated with the future of the majority ethnic group. At the same time, the alleged patriotic (collective) duty of ensuring the survival of the nation was often merged with the moral (individual) duty towards one's future self or towards a set of prescribed expectations of "the correct way of life" in a multi-layered portrayal of childbearing as a virtuous behaviour.

At times, the patriotic frame also contained a temporal bridge, such as in the multiple contrasts (e.g. MT1.; ST1.) between population decline in the present amidst relatively favourable socio-political circumstances and demographic growth under difficult historical conditions in both countries. Finally, frame bridging also occurred between one of the four frames and an "ideologically congruent but structurally unconnected frame" (Snow et al. 1986: 467) unrelated to the subject matter of childbearing. This was observed in the occasional reinforcement of the patriotic and moral frames (in separate instances, e.g. MT1 and MT3) through the (stated or unstated) appeal to traditional gender norms, possibly under the assumption that appealing to such presumably popular norms might make the pronatalist message resonate better with the audience.

The analysis also found non-negligible evidence of frame extension, which is usually regarded in the literature as a less common framing technique (Snow & Benford 1986; Lindekinde 2014). Examples include the portrayal of socioeconomic concerns around low fertility as fatal to the entire economy (rather than posing potentially manageable threats to specific aspects of it) (MD1a.) and the extension of moral concerns around low fertility to moral concerns around the alleged decline in marriage rates and emergence of a "liberal Marxist ideology" (SC1a.). We found no evidence of frame transformation, which means that the two more complex techniques as per the Frame Analysis method were either not used at all or used less (in the case of frame extension) compared to the two more straightforward techniques (frame amplification and bridging). This suggests that the discursive actors were unable – and/or unwilling – to adopt more complex framing of low fertility. One explanation of this finding can be derived from the expectation that, as discussed in more detail below, the four frames (especially the patriotic and

moral ones) are likely to appear intuitive to a majority of the Macedonian and Serbian populations, thus potentially resonating with them even when framed in a simpler fashion.

In both countries, the patriotic and moral frames emerged as the two most common frames. Within the patriotic frame, particularly strong similarities emerged in the depiction of childbearing as a matter of historical duty towards past generations. Abundant similarities were also observed under the moral frame, albeit with one difference. While also present in Serbia ("Who is going to bring you your medications when you are 50 or 60"?; SD2c.), the assertion of a moral duty towards *oneself* was more prevalent in North Macedonia ("no success is complete without children" (MT3.); "childbearing is about happiness, childbearing is about joy" (MC1a.)), as opposed to the prevalence of a moral duty towards society and the national "way of life" in Serbia. Taken together, however, these two frames provide support to our theoretical expectation that pronatalist governments use their pronatalism as a tool for Renan's "daily plebiscite" (1992) and the ongoing redefinition of national identity. However, contrary to our theoretical expectations of similar findings given the multi-ethnic character of both societies and their relatively fraught interethnic relations, the ethnic frame was only observed in Serbia.

The prevalence of the patriotic and moral frames over the socioeconomic frame in both countries confirms our expectation that pronatalism in North Macedonia and Serbia is more rooted in post-materialist politics than in demographic realities. This finding is also consistent with the notion of a two-dimensional ideological axis in the contemporary politics of developed countries, as the patriotic and moral frames coexist with the (less salient yet present in both countries) socioeconomic frame, indicating that Macedonian and Serbian policymakers have adopted a multi-layered framing of pronatalism. In any case, the observed dominance of (conservative) identity-based frames also fits the slightly broader notions of "re-traditionalisation" and "re-familialisation" that have marked the evolution of family discourse *and* policy in (most of) the Balkans and Eastern Europe since the collapse of socialism (Hantrais 2004; Javornik 2016; Simic & Simic 2019), with policy provisions either being cut altogether or focused on tools such as long maternity leave with little regard for gender equality. As demonstrated also by this study, these paradigms have manifested themselves discursively through an increasing focus on individual

(sometimes instead of – rather than alongside – systemic) responsibility for demographic trends, and by extension, for the (allegedly uncertain) survival of the nation.

While the patriotic and moral frames were more commonly observed than the socioeconomic frame, the (marginal yet clear) presence of the latter frame is also worth highlighting, cautioning against an oversimplified interpretation of pronatalist discourse by conservative policymakers as ideologically homogeneous. In fact, the diversity of frames observed in the analysis is in line with Bartha et al. (2020)'s proposed notion of "ideal-type populist policymaking" with regards to Hungarian pronatalism. Through a discourse analysis of the speeches of Prime Minister Viktor Orban, they found that the discursive representation of pronatalism could be better described as a catch-all glorification of a wide range of alleged benefits of higher births, including socioeconomic ones. Similar findings have been produced with regard to Poland (e.g. Dryjanska 2021), where pronatalism was, after all, introduced by a socially conservative yet economically left-wing government, with the reduction of child poverty featuring as a (secondary yet non-negligible) justification of the policy.

In terms of potential explanations for the results in this paper, there are several 'supply' *and* 'demand' factors which could account for the main similarity in the results between the two countries: the dominance of the patriotic and moral frames. As far as 'demand' factors are concerned, patriotism and conservative values play a strong role in North Macedonia and Serbia, both of which have some of the highest rates of self-declared religious and patriotic attachment in Europe. As of 2015 (Pew Research Centre 2018), 72% of Serbs and 88% of Macedonians declared themselves to be religious (compared to a world average of 63%), while 65% of Serbs and 57% of Macedonians (compared to a world average of 49%) viewed their respective countries as superior to others as of 2017 (ibid). 'Demand' explanations of discursive strategies are common in the literature, as said strategies are assumed to be effective only when they mobilise "political symbols ever-present in the shared ideological repertoires, [i.e.] a relatively coherent set of cultural beliefs, [that are] available in their society" (Beland 2005). In family policy specifically, the progressive shift in citizens' attitudes towards gender equality regarding childcare has been linked with policy change in Germany and Japan (Fleckenstein & Lee 2014);

the lack of such a shift, on the other hand, has been cited as one of the reasons for Italy's enduring familialist policy regime (Leon et al. 2021).

With regard to 'supply' factors, both VMRO-DPMNE and SNS (during the periods of interest as well as today) are conservative parties whose ideological appeal has consistently been rooted in patriotism and (to a somewhat lesser extent) Christianity in countries with highly contested nation-building processes. At the European level, both parties are members of the centre-right European People's Party (EPP). SNS leader, President Aleksandar Vucic, was Minister of Information in Slobodan Milosevic's disgraced wartime government in the 1990s and has built his political persona as a defender of the Serbian nation (Jovanovic 2019; Vulovic 2022). VMRO-DPMNE has developed a similarly nation-saving brand over the years with strong patriotic imagery (Vangelov 2019; Gjuzelov & Hadjievska 2020), not least through its name, as VMRO stands for the Internal Macedonian Revolutionary Organisation (*Vnatresna Makedonska Revolucionerna Organizacija*), an anti-Ottoman paramilitary unit from the late 19th and early 20th century.

The main cross-country difference emerging from the results of the analysis, i.e. the embrace of the ethnic frame in Serbia and the complete lack thereof in North Macedonia, has confirmed our expectation about the importance of party competition, as the former might have been influenced by the lack of a prominent ethnic-minority coalition partner and the pressure from a far-right challenger (Dveri), while the latter might have been affected by the need to preserve a complex interethnic governing coalition. The absence of an ethnic frame of low fertility observed in VMRO-DPMNE's rhetoric can also be seen as partly supportive of Jan Rovny's (2014) seminal thesis on the effects of ethnicity on party competition in post-socialist Eastern Europe. Rovny found that the presence of a sizeable ethnic minority was associated with more progressive politics (although usually in the form of electoral losses for – rather than ideological moderation of – centre-right parties). In our case, the progressive "outcome" relates to VMRO-DPMNE's avoidance of ethnic-based rhetoric and its choice not to instrumentalise the significant discrepancies in the fertility rate of ethnic Macedonians and ethnic Albanians – a common discursive focus of SNS in Serbia.

It is also important to highlight that the absence of an ethnic framing of low fertility in North Macedonia's government discourse does not necessarily mean that pronatalism was never articulated in ethnic terms in the *broader* public discourse. The media space in both countries in this study has been characterised as highly politicised during the period of interest (Pjesivac et al. 2016; Jovanovic 2019), with the two ruling parties controlling or at least partly influencing most major media outlets. It is therefore conceivable that the media played an important role in the overall articulation of the pronatalist message intended by these governments. In terms of the ethnic framing, government-friendly media might have undertaken the role of messengers of the already-existing ethnic framing in the government discourse in Serbia. In North Macedonia, their role might have been one of conduits, as prominent journalists close to the government might have (ab)used their putatively impartial position to articulate ethnically charged narratives on behalf of the government that might have been politically costly if emanated by said government directly (Stojarova 2019).

Finally, it is important to acknowledge several limitations to this research. First, as an extension of the possibility of other political and societal actors complementing the pronatalist discourse emanating from policymakers (as raised in the previous paragraph), an explicit consideration of the role of media (especially in countries with curtailed media freedoms) in future analyses of pronatalist discourses might lead to somewhat different findings. Other relevant actors of interest might include churches and conservative non-governmental organisations, which have emerged as important pronatalist advocates in (other) parts of Eastern Europe (Shiffman et al. 2002; Dobrotic et al. 2013). Second, this study was limited to the communicative discourse around pronatalism. Future studies of the *coordinative* discourse between all political and policy actors before the introduction of pronatalist policy, especially in countries with stronger party competition and more meaningful political contestation of pronatalism than North Macedonia and Serbia, should be encouraged. Third, the analytical focus here on the framing of low fertility as a policy problem, rather than pronatalism as a policy response, even though the two were sometimes overlapping in our data sample, prevented this paper from considering any potential government rhetoric on the policy implications of pronatalist child benefits *beyond* pronatalism, for instance in areas such as gender equality and child poverty. Fourth, the non-overlapping

timeframes of pronatalism in the two country cases precluded any analysis of possible interaction and mutual influence between the two discourses, which might bring an additional layer of nuance to otherwise similarly designed research with a different case selection. Fifth, the comparative nature of the study dictated the focus on the same specific discursive formats around specific policy milestones, which, while enabling a direct comparison, came at the expense of potentially simplifying the overall pronatalist government discourses in the two countries.

Conclusion

Pronatalist government discourses in North Macedonia and Serbia have seen more frequent articulations of patriotic and moral concerns regarding low fertility compared to socioeconomic concerns, in line with the broader trend towards post-materialism in international political discourse, although with a major difference in terms of the articulation of ethnic concerns, which were observed in Serbia but not in North Macedonia. These concerns have been articulated through three framing techniques (frame amplification, bridging, and extension), yet not through (full-fledged) frame transformation. This indicates that policymakers might have felt the need to resort to a multi-layered discursive strategy, while stopping short of the most ambitious (and risky) possible technique, presumably because they regarded the pronatalist concerns in question as intuitive enough (for their target audiences) to be articulated in a more straightforward fashion.

This paper posits that the similarity in the salience and form of the articulation of patriotic and moral concerns around low fertility between the two case countries might be attributable to the high salience of patriotic and religious attitudes among their populations, which make the patriotic and moral frames of low fertility likely to resonate with said populations, as well as the conservative ideology of the two ruling parties in question. It also posits that the different finding on the ethnic frame (present in Serbia and absent in North Macedonia) might be related to differences in party competition and interethnic relations.

Further research on this topic is highly necessary, especially in countries where the discursive frames around low fertility analysed in this paper might manifest themselves differently or be replaced by different frames altogether. For instance, in countries with high immigration and negative citizen attitudes towards immigration, the ethnic frame might be expected to play a much larger role. Moreover, the implications of party competition for pronatalist discourses might be very different in countries with a narrower power gap between the ruling party and its challengers. In fact, such challengers might sometimes (albeit probably rarely) emerge also from the "left" of the political spectrum, as pronatalist policy in Poland, for instance, is also endorsed by the now-ruling and formerly biggest opposition (progressive) party (Hrytsai 2021). Finally, this paper might prove useful to area studies scholars of North Macedonia and Serbia, as some of its findings might (indirectly) shed light on the broader discursive strategies of self-legitimation adopted by conservative ruling parties in these countries.

Bibliography

Albright, J. J. (2010). The multidimensional nature of party competition. *Party Politics*, *16*(6), 699-719.

Alesina, A., Reich, B. (2015). Nation-building. *Working paper*, Department of Economics, Harvard University.

Anser, M. K., Yousaf, Z., Khan, M. A., Xuan Hinh Voo, Nassani, A. A., Alotaibi, S. M., . . . Zaman, K. (2020). The impacts of COVID-19 measures on global environment and fertility rate: Double coincidence. *Air Quality Atmosphere and Health, 13*(9), 1083-1092.

Armitage, A. (2021). From demographic security to demographic resilience: Towards an anthropology of multilateral policymaking in eastern Europe. *Ph.D. thesis*, Geneva Graduate Institute.

Brady, D., & Finnigan, R. (2014). Does immigration undermine public support for social policy?. *American sociological review*, *79*(1), 17-42.

Breyer, F., Costa-Font, J., & Felder, S. (2010). Ageing, health, and health care. *Oxford Review of Economic Policy, 26*(4), 674-690. doi:10.1093/oxrep/grq032

Bruno, D., Sorando, R., A´lvarez-Farizo, B., Castellano, C., Ce´spedes, V., Gallardo, B., Jime´nez, J. J., . . . Com´ın, F. A. (2021). Depopulation impacts on ecosystem services in Mediterranean rural areas. *Ecosystem Services, 52*.

Beland, D. (2005). Ideas and social policy: An institutionalist perspective. *Social Policy & Administration, 39*(1), 1–18. doi:10.1111/j.1467-9515.2005.00421.

Calasanti, T. (2020). Brown slime, the silver tsunami, and apocalyptic demography: The importance of ageism and age relations. *Social Currents, 7*(3), 195–211.

Calhoun, C. (2017). Populism, nationalism and Brexit. In W. Outhwaite (Ed.), *Brexit: Sociological responses* (pp. 57–76). Anthem Press.

Canzler, W. (2008). Transport infrastructure in shrinking (East) Germany. *German Politics & Society, 26*(2), 76–92. https://doi.org/10.3167/gps.2008.260205

Cox, R. H. (2001). The social construction of an imperative: Why welfare reform happened in Denmark and the Netherlands but not in Germany. *World Politics, 53*, 463-98.

Deutsch, K., Foltz, W. (2010). Nation building in comparative contexts. *Aldine Transaction*.

Dobrotić, I., Matković, T., & Zrinščak, S. (2013). Gender Equality Policies and Practices in Croatia–The Interplay of Transition and Late E uropeanization. *Social Policy & Administration*, *47*(2), 218-240.

Ekman, M. (2022). The great replacement: Strategic mainstreaming of far-right conspiracy claims. *Convergence, 28*(4), 1127-1143.

Fleckenstein, T., Mohun Himmelweit, S. (2022). The politics of ideas in family policy: Parties, electoral competition, and shifting norms. *Oxford Handbook of Family Policy Over the Life Course*.

Frejka, T., & Gietel-Basten, S. (2016). Fertility and family policies in Central and Eastern Europe after 1990. *Comparative Population Studies*, 41(1), 3-56.

Fukuyama, F. (2018). Why national identity matters. *Journal of Democracy*, *29*(4), 5-15.

Gauthier, A. (1996). The state and the family: A comparative analysis of family policies in industrialized countries. *Clarendon Press Oxford*.

Gerovska Mitev, M. (2019). Social policy during a decade of centre-right governance in Macedonia. *Western Balkan economies in transition: Recent economic and social developments*, 123-134.

Ghodsee, K. (2018). Why women have better sex under socialism. *Pennsylvania: Vintage Books*.

Gietel-Basten, S. (2023). Depopulation or population decline? Demographic nightmares and imaginaries. *Vienna Yearbook of Population Research 2023, 21*.

Gjuzelov, B., & Hadjievska, M. I. (2020). Institutional and symbolic aspects of illiberal politics: The case of North Macedonia (2006-2017). *Southeast European and Black Sea Studies, 20*(1), 41-60. doi:10.1080/14683857.2019.1672941

Goffman, E. (1974). Frame analysis: An essay on the organization of experience. *Cambridge, MA: Harvard University Press*.

Gordy, E. (2013). Guilt, responsibility, and denial: The past at stake in post-Milosevic Serbia. *Pennsylvania Studies in Human Rights*.

Hanley, S. (2013). The Development of Pensioners' Interest Organisations in Central and Eastern Europe: A Comparison of the Czech and Slovene Cases. *Europe-Asia Studies*, *65*(1), 45-74.

Hantrais, L. (2004). Family policy matters: Responding to family change in Europe. *Bristol: The Policy Press*.

Hausermann, S. (2020). Dualization and electoral realignment. *Political Science Research and Methods*, *8*(2), 380-385.

Hrystai, L. (2021). Evaluation of the Family 500+ Programme: National and International Perspectives. *Politologia, 28*(2).

Hummel, D., Lux, A. (2007). Population decline and infrastructure: The case of the German water supply system. *Vienna Yearbook of Population Research, 5*, 167–191. https://doi.org/10.1553/populationyearbook2007s167

Inglot, T., Szikra, D., & Rat, C. (2022). Mother, families, or children?: Hungary, Poland, and Romania. University of Pittsburgh Press.

Haskova, H., Marikova, H., Sloboda, Z., & Popisilova, K. (2022). Childlessness and barriers to gay parenthood in Czechia. *Social Inclusion, 10(3).* Special issue.

Javornik, J. (2016). Maternal employment in post-socialist countries: Understanding the implications of childcare policies. In T. Roosalu & D. Hofacker (Eds.), *Rethinking gender, work and care in a new Europe: Theorizing markets and societies in the post-postsocialist era* (pp. 189-214). Hampshire: Palgrave Macmillan.

Jovanovic, S. M. (2019). Confronting recent history: Media in Serbia during Aleksandar Vucic's Ministry of Information in the Milosevic era (1998-1999). *Hiperboreea, 6*(1), 61-74.

Kitschelt, H. P., & Rehm, P. (2022). Polarity reversal: The socioeconomic reconfiguration of partisan support in knowledge societies. *Politics & Society*.

Kornai, J. (2015). Hungary's U-turn: Retreating from democracy. *Journal of Democracy, 26(3),* 34–48.

Krastev, I. (2016). What's wrong with East-Central Europe?: Liberalism's failure to deliver. *Journal of Democracy, 27(1),* 35–38.

Krause, W., Cohen, D., & Abou-Chadi, T. (2023). Does accommodation work? Mainstream party strategies and the success of radical right parties. *Political Science Research and Methods*, *11*(1), 172-179.

Lee, R. D., & Mason, A. (2012). Population aging and the generational economy: A global perspective. *Edward Elgar*.

Lee, R., Mason, A., & Members of the NTA Network. (2014). Is low fertility really a problem? Population aging, dependency, and consumption. *Science, 346*(6206), 229–234.

León, M., Pavolini, E., Miró, J., & Sorrenti, A. (2021). Policy change and partisan politics: Understanding family policy differentiation in two similar countries. *Social Politics: International Studies in Gender, State & Society*, *28*(2), 451-476.

Lindekilde, L. (2014). Discourse and frame analysis: In-depth analysis of qualitative data in social movement research. In D. della Porta (Ed.), *Methodological practices in social movement research* (pp. 195-227). Oxford: Oxford University Press.

Lipp, B., & Peine, A. (2022). Ageing as a driver of progressive politics? What the European Silver Economy teaches us about the co-constitution of ageing and innovation. *Ageing & Society*.

Lutz, W. (2022). National human development report – Serbia 2022: Human development in response to demographic change. *United Nations Development Programme*.

Merdjanova, I. (2000). In search of identity: Nationalism and religion in Eastern Europe. *Religion, State and Society, 28*(3), 233-262. doi:10.1080/713694765

Norris, P., & Inglehart, R. (2019). Cultural backlash: Trump, Brexit, and authoritarian populism. *Cambridge University Press*. doi:10.1017/9781108595841

Obaidi, M., Kunst, J., Ozer, S., & Kimel, S. Y. (2022). The "Great Replacement" conspiracy: How the perceived ousting of Whites can evoke violent extremism and Islamophobia. *Group Processes & Intergroup Relations, 25*(7), 1675-1695.

Orenstein, M. A. (2008). *Privatizing pensions: The transnational campaign for social security reform*. Princeton University Press.

Rovny, J. (2014). Communism, federalism, and ethnic minorities: Explaining party competition patterns in Eastern Europe. *World Politics*, *66*(4), 669-708.

Pavlovic, D. (2020). The political economy behind the gradual demise of democratic institutions in Serbia. *Southeast European and Black Sea Studies, 20*(1), 19-39. doi:10.1080/14683857.2019.1672929

Pendleton, B. F. (1978). An historical description and analysis of pronatalist policies in Italy, Germany and Sweden. *Policy Science, 9*, 45–70. https://doi.org/10.1007/BF00137978

Petreski, M. (2021). How migration, human capital and the labour market interact in North Macedonia. *European Training Foundation*.

Pew Research Center. (2018). Religious belief and national belonging in Central and Eastern Europe. *Pew Research Center*.

Pickup, M., de Rooij, E. A., van der Linden, C., & Goodwin, M. J. (2021). Brexit, COVID-19, and attitudes toward immigration in Britain. *Social Science Quarterly, 102*(5), 2184-2193.

Pierson, P. (2000). Increasing returns, path dependence, and the study of politics. *American Political Science Review, 94*(2), 251-267.

Pjesivac, I., Spasovska, K., & Imre, I. (2016). The truth between the lines: Conceptualization of trust in news media in Serbia, Macedonia, and Croatia. *Mass Communication and Society, 19*(3), 323-351. doi:10.1080/15205436.2015.1128548

Renan, E. (1992). What is a nation? In E. Renan, *Qu'est-ce qu'une nation?*. Paris: Presses-Pocket.

Schmidt, V. A. (2008). Discursive institutionalism: The explanatory power of ideas and discourse. *Annual Review of Political Science, 11*, 303-326. doi:10.1146/annurev.polisci.11.060606.135342

Schwander, H. (2018). Electoral demand, party competition, and family policy: The politics of a new policy field. In P. Manow (Ed.), *Welfare Democracies and Party Politics: Explaining Electoral Dynamics in Times of Changing Welfare Capitalism* (pp. 197-224). Oxford: Oxford University Press.

Seeleib-Kaiser, M., & Toivonen, T. (2011). Between reforms and birth rates: Germany, Japan, and family policy discourse. *Social Politics, 18*(3), 331-360. doi:10.1093/sp/jxr016

Shiffman, J., Skrabalo, M., & Subotic, J. (2002). Reproductive rights and the state in Serbia and Croatia. *Social Science & Medicine, 54*(4), 625-642. doi:10.1016/S0277-9536(01)00134-4

Sides, J., Tesler, M., & Vavreck, L. (2017). Donald Trump and the rise of White identity politics. *Proceedings of the 2016 US Presidential Election: Tumult at Home, Retreat Abroad*, 1-36.

Signes-Pont, M. T., Cortés-Plana, J. J., Boters-Pitarch, J., & Mora-Mora, H. (2022). Cultural heritage and sustainable rural development: The case of Tàrbena, Spain. *Heritage Review, 5*(4), 3010–3031. https://doi.org/10.3390/heritage5040156

Simić, M., & Simić, I. (2019). Who should care about our children? Public childcare policy in Yugoslav socialism and its Serbian aftermath. *Journal of Family History, 44*(2), 145–158.

Snow, D., & Benford, R. (1988). Ideology, frame resonance, and participant mobilization. In B. Klandermans, H. Kriesi, & S. Tarrow (Eds.), *From structure to action: Comparing social movement research across cultures* (pp. 197–217). Greenwich, CT: JAI Press.

Snow, D., Rochford, E., & Benford, R. (1986). Frame alignment processes, micromobilization, and movement participation. *American Sociological Review, 51*(4), 464–481.

Sobotka, T. (2017). Post-transitional fertility: Childbearing postponement and the shift to low and unstable fertility levels. *Vienna Institute of Demography Working Papers, 01/2017.*

Stojarova, V. (2020). Media in the Western Balkans: Who controls the past controls the future. *Southeast European and Black Sea Studies, 20*(1), 161-181. doi:10.1080/14683857.2020.1702620

Suli, T. (2022). Pathways to parenthood in a low fertility context: A grounded theory study of childbearing trajectories among couples in the Republic of Serbia. Doctoral Dissertation, *University of Oxford*.

Szalma, I., Haskova, H., Olah, L., & Takacs, J. (2022). Fragile pronatalism and reproductive futures in European post-socialist contexts. *Social Inclusion, 10*(3), 82-86. doi:10.17645/si.v10i3.6128

Taylor, C. (2002). Modern social imaginaries. *Public Culture, 14*(1), 91–124.

Tepe, M., & Vanhuysse, P. (2010). Elderly bias, new social risks, and social spending: Change and age in eight programmes across four worlds of welfare, 1980-2003. *Journal of European Social Policy, 20*(3), 217-234.

Toft, M. (2021). Chapter 7: Wombfare: The weaponization of fertility. In J. Scubba (Ed.), *A research agenda for political demography*. Elgar Online.

Togman, R. (2019). Nationalizing sex: Fertility, fear, and power. *Oxford University Press*.

Trimble, R. (2013). The threat of 'Demographic Winter': A transnational politics of motherhood and endangered populations in pro-family documentaries. *Feminist Formations, 25*(2), 30–54. https://doi.org/10.1353/ff.2013.0028

Ullah, M. A., Moin, A. T., Araf, Y., Bhuiyan, A. R., Griffiths, M. D., & Gozal, D. (2020). Potential effects of the COVID-19 pandemic on future birth rate. *Frontiers in Public Health, 8*, 578438. doi:10.3389/fpubh.2020.578438

United Nations (2021). World population policies 2019: Highlights. *Department of Economic and Social Affairs, Population Division*.

van Dijk, T. (2006). Discourse and manipulation: Theoretical discussion and some applications. *Revista Signos, 39*(60), 49-74. doi:10.4067/S0718-09342006000100003

Vangelov, O. (2019). The primordialisation of ethnic nationalism in Macedonia. *Europe-Asia Studies, 71*(2), 203-224. doi:10.1080/09668136.2018.1562043

Vulovic, M. (2020). Performing statehood in Northern Kosovo: Discursive struggle over contested space. *Cooperation and Conflict, 55*(3), 326-346. doi:10.1177/0010836720906851

Whitehead, A. L., Perry, S. L., & Baker, J. O. (2018). Make America Christian again: Christian nationalism and voting for Donald Trump in the 2016 presidential election. *Sociology of Religion, 79(2),* 147–171.

Appendix 2.1: Data Sample

North Macedonia			Serbia		
Parliamentary debates (app. total duration: 3h)	Press conferences (app. total duration: 1h)	TV campaign (app. total duration: 1h)	Parliamentary debates (app. total duration: 3h)	Press conferences (app. total duration: 2h)	TV campaign (app. total duration: 0,5h)
MD1. First debate on the policy introduction (April 13, 2009): *MD1a. Member of Parliament Silvana Boneva (x2) *MD1b. Member of Parliament Vlatko Gjorchev *MD1c. Member of Parliament Ilija Dimovski (x2) MD2. Second debate on the policy introduction (April 17, 2009): *MD2a. Member of Parliament Marjan Ristovski (x2) *MD2b. Member of Parliament Nikola Petkovski (x3) Accessed from the official website of the National Parliament of the Republic of North Macedonia: https://www.sobranie.mk/	MC 1. Announcement of the policy (February 24, 2009): *MC1a. Prime Minister Nikola Gruevski (x3) *MC1b. Member of Parliament Vlatko Gjorchev (x2) *MC1c. Member of Parliament Ilija Dimovski (x2) Accessed from the official website of the Government of the Republic of North Macedonia: https://vlada.gov.mk/	MT1. "Family Album" MT2. "The Lives of Two Families" MT3. "Professional Woman with Four Children" (x2) MT4. "Young Mother" MT5. "Empty Schools" (x2) MT6. "Parents with Five Kids" (x2) MT7. "Springflower" MT8. "Beethoven Was Not Aborted" MT9. "Abortion in Hospital" (Note: All episodes were released jointly in May 2009 and were broadcast sporadically over several months on national TV channels. Accessed from the official YouTube channel *Government of the Republic of Macedonia – TV Campaigns (Кампањи на Влада на РМ): youtube.com/ @КампањинаВладанаРМ).*	SD1. Debate on the first policy iteration (March 22, 2018): *SD1a. Member of Parliament Srbislav Filipovic (x2) *SD1b. Member of Parliament Nebojsa Bakarec (x2) SD2. Debate on the second policy iteration (February 23, 2022): *SD2a. Family Minister Ratko Dmitrovic (guest appearance; x3) *SD2b. President Aleksandar Vucic (guest appearance; x2) *SD2c. Member of Parliament Srbislav Filipovic (x2) *SD2d. Minister of Finance Sinisa Mali (guest appearance; x2) *SD2e. Member of Parliament Samir Tandir (x2) Accessed from the official website of the National Parliament of the Republic of	SC1. Announcement of the first policy iteration (February 14, 2018): *SC1a. President Aleksandar Vucic (x3) *SC1b. Family Minister Ratko Dmitrovic (x2) SC2. Announcement of the second policy iteration (January 11, 2022): *SC2a. President Aleksandar Vucic (x2) *SC2b. Family Minister Ratko Dmitrovic (x2) *SC2c. Prime Minister Ana Brnabic (x2) Accessed from the official website of the Government of the Republic of Serbia: https://www.srbija.gov.rs/	ST1. "The Things That Matter in Life" (x3) ST2. "Mom, I Want a Brother" ST3. "Shush, The Baby Is Crying" (x2) ST4. "Investment in the Future" ST5. "The Serbian Tree of Life" (x2) ST6. "When I'm Gone" (Note: All episodes were released jointly in April 2018 and were broadcast sporadically over several months on national TV channels. Accessed from the YouTube channel *Population Crisis (Криза становништва)* – no longer available;

			Serbia: http://www.parlament.gov.rs/		last accessed: January 27, 2024)).

Appendix 2.1 – Legend:

MD = North Macedonia – Parliamentary Debate

MC = North Macedonia – Press Conference

MT = North Macedonia – TV Campaign

SD = Serbia – Parliamentary Debate

SC = Serbia – Press Conference

ST = Serbia – TV Campaign

(x1); (x2); (x3) = the number of relevant utterances by the discursive actor on the respective occasion

Appendix 2.2: Example of the categorisation of utterances into frames

As explained in the text, the 58 discursive utterances were categorised into one or more of the four frames (which meant that the number of frame references – 80 – ended up being higher than the number of utterances – 58) based on the definition of each of the four frames. Moreover, the utterances constitute specific segments (e.g. a full sentence, parts of a sentence, or several consecutive sentences) of the 22 discursive occasions. This appendix details the categorisation process through the example of ST1. "The Things That Matter in Life": one of the episodes in Serbia's TV campaign. The episode is four minutes long and contains two discursive utterances relevant to the analysis. It comprised verbal and non-verbal elements (e.g. dramatic background music, video material of children playing with each other in a backyard, a baby crying, etc.). The verbal elements are 109 words long in total and their full content is transcribed below in italics. The beginning and end of each of the two discursive utterances are highlighted and a rationale for their (non-)classification is provided. The approach outlined below was followed for all remaining 21 discursive occasions.

ST1 ("The Things That Matter in Life", TV campaign episode, 2018): *60,124 babies. 60,124 more Serbs. This was the number of births in our country last year [2017]. But we can do better. We must do better.*

This segment of the episode is not classified under any of the four frames as it does not contain a relevant utterance. The material here describes birth trends in the country in a factual fashion and provides generic encouragement for more births without offering any insight into our research question, i.e. what types of concerns are linked to low fertility and the ways in which this is done.

Let's think about our ancestors who had multiple children under much more dire circumstances: world wars, Balkan wars. They didn't live for the latest iPhone series or brand of shoes; they lived for the sound of a baby crying.

This segment is classified as a relevant utterance both under the patriotic frame and the moral frame. (It was even highlighted in the analysis section as particularly illustrative of those frames.)

As discussed there, the reason it warrants classification into the patriotic frame is the invocation of moral duty towards past Serbian generations ("let's think about our ancestors") and the importance of childbearing as a point of continuity between generations. At the same time, this utterance also belongs in the moral frame by virtue of the very fact that it casts childbearing as a moral duty by portraying it as a morally superior behaviour to "living for the latest iPhone series or brand of shoes".

And we just need to ask ourselves: what are the things that really matter in life? What will we look back on when we are on our deathbed, and who will be there to hold our hand when we do so?

Have More Children! [end of episode]

This final segment (not showcased in the results section but counted in the content analysis) is classified as a relevant utterance under the moral frame, as it evokes an explicit responsibility towards oneself to have children as a source of self-fulfilment and form of insurance in old age. Thus, the number of relevant utterances from this discursive occasion is two and the number of frame references is three (as indicated previously in Appendix 2.1), since the previous utterance was relevant under two of the four frames.

Paper 3: Child Benefit Size and Design in Europe: Macroeconomic, Sociocultural, and Political Factors

Abstract

Family policy spending has been linked to a wide range of macroeconomic, sociocultural, and political factors in the social policy, family policy, demography, and political science literatures. This paper seeks to examine the influence of these factors on child benefit size and design in a systematic fashion, with special emphasis on several understudied yet increasingly salient policy determinants in the context of population aging. More specifically, it explores the association between five macroeconomic factors, three sociocultural factors related to immigration, and three political factors and child benefit size in 26 European countries between 2002 and 2021. Child benefit size is operationalised in cumulative terms, as well as in terms of variation by birth order (from first to fourth children) and household income (middle- and low-income). The analysis is conducted through a pooled time series regression with twelve models (two for aggregate child benefit size, two for each of the four birth orders, one aggregating the two income levels and one capturing the variation by household income) with country fixed effects and panel corrected standard errors, using data from a wide range of international sources.

The paper finds that all three types of factors tested are linked to child benefit size, although the presence and size of specific factors varies by birth order and household income. The most consistently (negatively) associated factor across the regression models is immigration stock, but in some of the models, child benefit size is also associated with inflation (negatively), GDP (positively), pro-immigration attitudes (positively) and right-wing party strength (positively and negatively depending on the household income category). Moreover, the difference in benefit size between middle- and low-income households is higher in instances of higher unemployment. These findings reinforce the scholarly consensus around child benefits as a multi-layered policy instrument, whose size can be facilitated and constrained by a complex interplay of macroeconomic, sociocultural, and political (f)actors.

Key terms: child benefit size, macroeconomic factors, sociocultural factors, political (f)actors

Introduction

Family policy has long been shaped by a complex interplay of macroeconomic, sociocultural, and political factors. This interplay involves conditions such as policy paradigms and public sentiments located in the background of the policy process, as well as more immediate drivers and articulations, such as political programmes and discursive frames standing in the foreground of the policy process (Campbell 2004; Streensland 2008; Skogstad 2011; Hogan & Howlett 2015).

Historically, family policies were introduced in response to – and have moved in congruence with – developments within and among families, states, markets, and societies more broadly. During its origins in the late 19th century and early 20th century in Western Europe, family policy began to emerge in the context of industrialisation and the increased capacity of states to meet the needs of their populations, at a time when those needs were becoming more complex due to an unprecedented mass entry into formalised employment arrangements (Bahle 1994; Gauthier 1996). It is thus impossible to understand family policy independently from the structural considerations surrounding it, as these constitute the "skeleton of society which shapes the fields of consensus and conflict and gives lasting support to some developments while simultaneously hindering others" (Kaufmann 2002: 458). However, sociocultural and political factors have tended to exert their influence in parallel with – and partly in response to – structural shifts, with the gradually expanding voting franchise in Europe around this time resulting in an increasing need for political articulation of the need and dimensions of family policy need(s) triggered by socioeconomic development and demanded by an expanded electorate and their political representatives (Gauthier 1996).

Scholarship is increasingly of the view that the role of ideas must be considered alongside structural factors. As Saraceno (2022: 6) has remarked, Kaufmann's aforementioned structural skeleton "is not impermeable to social and cultural change". This is evidenced by the plentiful cross-country variation in family policies in Europe – both over time as well as today – despite largely (albeit not exclusively) contemporaneous socioeconomic developments (Daly & Ferragina 2018). Thus, family policy has tended to operate in a sphere of complex normative contestation of the relationship between families, states, markets, and societies, as well as the very

understanding of each of these elements individually (Pfau-Effinger 2004). In fact, family policy might be more sensitive to ideational factors than many other policy fields. As Fleckenstein and Mohun Himmelweit have put it (2023: 271), family policy is a "domain in which the politics of ideas and ideational change are particularly pronounced, as they relate to competing values about the social order, in terms of public and private responsibilities, gender roles, and the appropriate way to raise children". Other scholars have highlighted the strongly normative nature of family policy, with a more pronounced 'values tension' (Bode 2022) than many other policy fields.

Changes in family policy have occurred against the backdrop of – and largely in response to – both macroeconomic factors (increased female employment but also shifts towards service-based economies with typically slower productivity gains and larger associated social risks) and sociocultural factors (liberalising gender norms and growing recognition of the rights and needs of children) (Ferragina & Seeleib-Kaiser 2015; Daly 2019). Of course, the ways in which policymakers have responded to the aforementioned macroeconomic and sociocultural factors have undoubtedly been driven also by political considerations. These three types of factors have determined the various institutional arrangements through which policymakers balance between states, markets, and families (Misra et al. 2007; Saraceno & Keck 2010; Korpi et al. 2013; Ferragina & Seeleib-Kaiser 2015).

"Child benefits" is an umbrella term for all forms of government-provided monetary support issued for childbearing and/or childrearing purposes, typically to parents or legal guardians (Wennemo 1994; Gauthier 1996). They account for a majority share of family policy spending in most developed countries (OECD Family Database 2021), having grown drastically and near-continuously as a share of household income over the past several decades (Daly & Ferragina 2018).

As detailed in the background chapter to this thesis, as well as in Paper 1, trends around the differentiation of child benefits by benefit type and socioeconomic groups have been extensively captured by the family and social policy literature, but the variation in benefit size by birth order has received less attention. Some notable exceptions include the studies by Aeerts et al. 2023

and Bornukova et al. 2024, as well as Paper 1 of this thesis, all of which found that child benefits in Europe tend to be larger for higher birth orders (especially third children), albeit not without strong cross-country heterogeneity.

This paper seeks to assess some of the underlying factors shaping the size and distributive profile of child benefits across family types and socioeconomic groups over time. The decision to apply such a multi-layered treatment of child benefits is motivated by the well-established acknowledgement in the social policy literature of the "dependent variable problem" (Clasen & Siegel 2007), or the tendency to (over)reduce the theoretical and analytical focus to aggregate indicators, thus risking the outcome of simplistic research findings (Green-Pedersen 2004). On the independent variable, as an analytical heuristic, the factors of interest are divided into macroeconomic, sociocultural, and political factors, while recognising that these do not always constitute fully distinct categories (as discussed in the next section).

The rest of the paper is divided into six sections. The next (second) section provides some theoretical and empirical background for the paper by situating this work within the broader family policy, social policy, and political science literature on policy drivers and constraints, with special emphasis on the theoretical considerations unique to child benefits as a policy instrument. The third section sets out the analytical framework for the paper vis-à-vis its four research hypotheses. The fourth section details the data and methods used in the paper. The remaining three sections present and discuss the results of the analysis before concluding.

Motivation and Justification

This section provides a detailed overview of the family policy, social policy, and political science literature around these three sets of factors of interest (in three separate sub-sections), with special emphasis on child benefits as the policy instrument of focus, which also provide the basis for deriving the four research hypotheses in the paper.

Macroeconomic factors

The relationship between macroeconomic factors and the size of child benefits (and, to a lesser extent, its variation by birth order and household income) is relatively well-documented and seems to indicate that child benefits tend to be neither among the first policies to be downsized in an unfavourable macroeconomic environment nor completely shielded from such risks.

Streeck and Mertens (2013), for instance, categorise child benefits (and family policy more broadly) under discretionary spending, or policies whose size and sometimes survival is dependent on the macroeconomic conditions, as opposed to mandatory spending, which is less sensitive to economic downturns. In this dichotomy, child benefits (among other policies) are counterposed to, for instance, pensions, whose minimum value tends to be fixed and which tend to be indexed to inflation (ibid). This discrepancy has been termed "pro-elderly bias" (Gal et al. 2018), or the tendency of contemporary welfare states to spend (much) more on the elderly than they do on children, with the gap widening further over the last few decades (Birnbaum et al. 2017).

Taking a longer view, Kamerman and Kahn (2001) saw child benefits (and other family policies) as victims of the broader trend of welfare state retrenchment (Korpi & Palme 2003), or the slowdown in spending on a wide range of social policies amidst weak economic growth in the 1970s and 1980s. Writing in the aftermath of an even more acute economic crisis, Blum et al. (2014) also concluded that family policies had been affected particularly severely by the Great Recession, although they view this trend as inextricable from contemporaneous sociocultural and political shifts. Finally, Pierson (2002) describes child benefits as victims of "politics in an age of austerity", but with reference to the long-term (and ever-growing) spending constraints posed by demographic change (see also Vlandas 2023), i.e. the increasing ratio of retirement-age individuals to working-age population, rather than any specific economic downturn.

However, there are also reasons to be less pessimistic about the vulnerability of child benefits to macroeconomic constraints on social spending. Some scholars have noted that spending trends have been much more resilient for family policies than they have been, for instance, for unemployment protection (Swank 2005; Ferragina 2022). Even the demographic aspect can be

seen as more of an incentive than a disincentive for spending on child benefits from a pronatalist perspective, with the goal of encouraging the birth of more children as future workers who can alleviate spending pressures the long run. This aspect has been receiving growing attention in the family policy literature, which has been becoming increasingly interested in the "productivist" function of families (e.g. Vanhuysse et al. 2024), as they are mobilised by political economy configurations as agents of, among other things, human capital development and labour supply. A positive association between the old-age dependency ratio and aggregate child benefit spending has indeed been found by Ferragina and Seeleib-Kaiser (2015).

Needless to say, whether and to what extent macroeconomic considerations will be factored into the policymaking calculus also depends on sociocultural and political considerations. Yet, the point here is that the relationship between unfavourable macroeconomic conditions ought not to be viewed deterministically, as they may (or may not) be counterweighted by macroeconomic considerations pushing in the opposite direction and prompting policymakers to be reluctant to reduce child benefit spending. Overall, however, despite the latter caveat, one can expect unfavourable macroeconomic conditions to (all else being equal) affect the size of child benefits negatively. As for their impact on their distributive profile by birth order, one can expect macroeconomic constraints to skew benefit size towards higher birth orders. Governments facing an economic downturn might prioritise minimising child poverty, which is disproportionately common in large families (Buchanan & Rotkirch 2013; Philipov et al. 2013), warranting the de-prioritisation of small families. Finally, for the same reason, under unfavourable macroeconomic circumstances, governments might be more reluctant to reduce benefit size for low-income households relative to middle-income households, as any benefit reduction would disproportionately impact the consumption patterns and quality of life of the former type of households, thus carrying potentially disproportionate political risks for policymakers (e.g. Stancheva 2024).

Sociocultural factors related to immigration

When it comes to the overall sociocultural norms on the importance of child benefits, it is clear that they have been societally accepted as a well-established component of the family policy toolkit. The previously summarised notion of "social investment", with its focus on the long-term cognitive and physical development of children, both in their own right and as contributors to their societies, has reflected a growing sociocultural recognition of the complexity of children's needs (Axford 2009; Wyness 2014; Daly 2020). At the societal level, it is worth highlighting the notion of "children as public goods" (Folbre 1994; Engster 2007; Bou-Habib & Olsaretti 2021), which captures the increasing understanding of the positive externalities provided by children, thus strengthening the societal consensus for alleviating parents' childrearing burden, including through child benefits.

However, while the underlying sociocultural conditions facilitating the existence and continuous aggregate growth of child benefits are present in contemporary European societies, the conclusion that the societal consensus around the importance of these policies is invulnerable might be unwarranted. Bremmer and Buergisser (2023) have provided evidence that family policies (including child benefits) tend to find themselves far below pension and education among citizens' spending priorities (although slightly above labour market policies). A similar conclusion has been reached by Vlandas (2023), who found that countries with a larger share of elderly population (*gerontonomias*) are particularly likely to prioritise policies benefitting the elderly over those benefitting working-age adults (including parents). His proposed mechanism for this trend relates to the superior influence on decision-making exercised by (typically higher-turnout) elderly voters (Goerres & Vanhuysse 2021), who are less likely to favour child benefit spending over other types of expenditures.

Any examination of the sociocultural factors affecting child benefits in recent decades would be inadequate without considering the revival of nationalism, which has (re)assumed a major role in the politics of developed countries (Calhoun 2017; Fukuyama 2018; Whitehead et al. 2018). Despite the gradual convergence in economic prosperity, the widely expected "convergence of values" (Inglehart 1999) and "end of history" (Fukuyama 1992) have so far failed to materialise,

with anxieties about the allegedly threatened survival of the nation losing none of their salience and often gaining additional potency. While this trend has manifested itself across Europe, the failure to achieve a convergence of values towards liberalism (at the level of citizen attitudes) during the three decades since the collapse of one-party rule has been most conspicuous in Eastern Europe (Kornai 2015; Krastev 2016; Grzymala-Busse 2017).

In social and family policy, this trend has mostly manifested itself (and been conceptualised accordingly) as "welfare chauvinism": the reduction or even wholesale withholding of welfare provisions from specific social or societal groups due to selective understandings of national belonging and thus benefit "deservingness" (Brady & Finnigan 2014; Eick 2024). This trend has become particularly relevant in the current context of all-time-highest foreign-born populations in many developed countries. While some scholars have shown the fertility rate of immigrants to (gradually) converge with the average birth rate in their country of arrival (Tonnessen 2020), immigrants (especially first-generation) are usually more likely to occupy a lower socioeconomic status and have larger families than the general population (Stichnoth & Yeter 2016). There are also considerable differences in fertility behaviours between (domestic-born) ethnic and religious groups, often even within countries and at comparable levels of socioeconomic status (Rindfuss et al. 2016). These objectively different socioeconomic trends between native and immigrant populations are often accompanied by beliefs that immigrants are more likely to be unemployed and take advantage of the welfare state, which is seen to have contributed to the previously discussed commodification of child benefits through increasingly stringent employment conditions (Ferrarini et al. 2012; Ferragina 2022).

Thus, sociocultural factors such as immigration stock and intolerant attitudes towards immigration can be expected to be negatively associated with aggregate child benefit size. This might, however, not hold true (or at least not to the same extent) for immigration stock as it might for anti-immigration attitudes, as long-standing traditions of diversity have been shown to lead to less intolerant citizen attitudes and policy outcomes than short-term and abrupt changes in the ethnic composition of a given population (Pettigrew 1998; Schlueter & Scheepers 2010). The thus-derived Intergroup Contact Theory posits that a high degree of ethnic heterogeneity might make the respective society more accustomed to diversity and therefore less likely to

favour any form of discrimination based on immigration status (ibid). Moreover, given the aforementioned differentials in the fertility rate and socioeconomic status of native and immigrant populations, large benefits for higher birth orders and low-income households are often seen as disproportionately benefitting immigrant communities (Eick 2024), which might skew benefits towards lower birth orders and middle-income households in contexts of intolerant sociocultural norms.

Political (f)actors

The revival of exclusionist sociocultural norms summarised in the previous sub-section has to a large extent been reflected in – and in turn driven by – similar trends at the political level. Across Europe, most saliently in its Eastern parts, the last few decades have seen the proliferation of illiberal ideologies by policymakers and political parties, including – and perhaps especially – among those in government (Kornai 2015; Krastev 2016; Grzymala-Busse 2017).

The most obvious link between these broader political trends and child benefits relates to the pronatalist function of the latter, which has become increasingly salient. Armitage (2021) has proposed the notion of "demographic imaginaries", where imagination and ideology, rather than purely technical considerations around demographic data, are central to the creation and construction of [a] "population crisis". In line with Haskova et al. 2022 and Szalma et al. 2022, she argues (2021) that pronatalism has "couche[d] changes in the size, age structure, geographic distribution, or ethnic composition of populations within the realm of national security and national stability".

As an element of the aforementioned family policy triad, child benefits have been embraced ever more strongly amidst the growing prevalence of pronatalism. This has been particularly true in Eastern Europe, where the twin trends of growing nationalism and pronatalism have been accompanied by another (related) socio-political tendency of "re-traditionalisation". The renewed embrace of religion in societies with high (pre-socialist) historical rates of religious belief (Merdjanova 2000) has led to a widespread embrace of familialist policy models (Shiffman et al.

2002; Hantrais 2004; Javornik 2016; Ghodsee 2018) with a strong emphasis on child benefits and parental leave.

Thus, the presence of right-wing parties in government and governments with a declared pronatalist orientation can be expected to be positively associated with child benefit size. However, while this expectation of a positive association follows neatly from the literature summarised above, it is worth mentioning that some scholarship is nonetheless sceptical. Right-wing party ideology, for instance, has been deemed more relevant to the breadth of benefit eligibility rather than their aggregate size, with a tendency towards stricter eligibility (by various criteria) being observed particularly in the early stages of the governing mandate of the party (Akkerman 2015; Bandau & Ahrens 2020; Rathgeb 2021). Right-wing parties have been linked to lower child benefit spending in the 1980s (Ferragina & Seeleib-Kaiser 2015) but have exhibited no statistically significant impact since the 1990s. There is a stronger scholarly consensus around the expected influence of left-wing party ideology (Therborn 1993; Childs & Krook 2009; Ferragina & Seeleib-Kaiser 2015), which has been consistently linked to larger family policies, including child benefits. Overall, however, the impact of (any) party ideology on child benefit size has been as declining in more recent decades, possibly because of the aforementioned concomitant convergence in societal preferences around larger family policy (and child benefit) spending, prompting political parties to match this convergence in their own platforms and actions (Sjoberg 2004).

Moreover, it is difficult to formulate an expected relationship between political (f)actors and the distributive profile of child benefits by birth order. On the one hand, the literature on pronatalism abounds with evidence of an increasing focus on higher birth orders in contemporary pronatalist policy packages introduced by right-wing ruling parties (Speder 2016; Wilk 2020; Inglot et al. 2022). On the other hand, the expectations of welfare chauvinism articulated in the previous sub-section have often been reflected rather clearly at the political and even policy level. Some notable country cases, such as the Netherlands and United Kingdom, of benefit caps after a certain number of children (Reader et al. 2023; Mari 2024), have been commonly interpreted as being at least partly driven by a desire to exclude (higher-fertility) immigrant or ethnic-minority households (and thus indirectly low-income households, who are typically larger as well). Similar

discussions have been salient with regard to benefit reductions for higher birth orders in countries with high shares of (high-fertility) Roma populations, such as Hungary (Guy & Kovacz 2006). It is thus not possible to formulate an unambiguous expectation regarding this relationship, which can be expected to be pulled in any of the opposite directions by the factors listed here. Regarding the differentiation by household income, however, one might not expect pronatalist governments (at least not without possessing additional information about their ideological orientation or policy history) to differentiate considerably between income groups, as they presumably seek to incentivise overall fertility.

Analytical Framework

This paper seeks to assess some of the underlying factors shaping the size and differentiation of child benefits across family types and socioeconomic groups over time. The decision to apply such a multi-layered treatment of child benefits is motivated by the well-established acknowledgement in the social policy literature of the "dependent variable problem" (Clasen & Siegel 2007), or the tendency to (over)reduce the theoretical and analytical focus to aggregate indicators, thus risking the outcome of simplistic research findings (Green-Pedersen 2004). On the independent variable, as an analytical heuristic, the factors of interest are divided into macroeconomic, sociocultural, and political factors, while recognising that these do not always constitute fully distinct categories (as discussed in the next section).

As previously anticipated, the core research question in this paper reads: *How do macroeconomic, sociocultural, and political (f)actors influence the size and design of child benefits in Europe?* This question is answered by testing the following three hypotheses (summarised also in the form of a matrix in Table 3.1 below):

H1. Total child benefit size is associated negatively with macroeconomic and sociocultural constraints but positively with the tested political factors.

H2. The size of child benefits for each birth order, and especially higher birth orders, is associated negatively with macroeconomic and sociocultural constraints but positively with left-wing party strength.

H3a. The size of child benefits is associated negatively with right-wing party strength and pronatalist government orientation for first and second children but positively for third and fourth children.

H3b. The size of child benefits is associated positively with right-wing party strength for first and second children but negatively for third and fourth children.

H4. The size of child benefits for middle-income households relative to low-income households is associated negatively with macroeconomic constraints but positively with sociocultural constraints and pronatalist government orientation.

Table 3.1. Summary of the analytical framework and the expected relationships

	Independent variable		
Dependent variable	*A. macroeconomic constraints*	*B. sociocultural constraints*	*C. political (f)actors*
1. Total benefit size	Negative	Negative	positive
2. Benefit size for higher birth orders	Negative	Negative	ambiguous
3. Middle-income benefit size to low-income benefit size ratio	Negative	Positive	positive (for pronatalist government orientation)

Data and Methods

The data on the dependent variable encompass the size of child benefits at three child ages (2, 9, and 17 years) and four birth orders (from first to fourth) for middle-income[53] and low-income

[53]Total gross household income: 150% of the median national wage (first adult = 100%; second adult = 50%).

households[54] in the 26 European member countries (17 for the low-income household)[55][56] of the OECD from 2002 to 2021. The size is expressed in aggregate terms (for all four children and at an average level across the three referent ages) as well as in terms of child-contingent payments (CCP), i.e. separately for the relevant birth order (in line with Corak et al. 2005; Figari et al. 2011; Pezer 2022; Fidanovski 2023; Bornukova et al. 2024) and at an average level across the three referent ages. All size values refer to the marginal increase in household income as a result of the relevant number of children, thus comparing the household to a household with an otherwise identical total income apart from the sum of any child-related government financial transfers made to the household[57]. The benefit data have been derived from the dedicated Online Platform version of the OECD TaxBen simulator, which provides comprehensive and methodologically consistent information on child benefit size[58] in OECD member countries in the form of annual values applicable as of January of the relevant year. The data on the independent variable have been derived from a wide range of international sources listed in Table 3.2 below.

Table 3.2: List of data sources on the independent variable

	Independent variable	Data source

[54]Total gross household income: 60% of the median national wage (first adult = 30%; second adult = 30%). The assumptions for the two adults are meant to broadly correspond to de jure or de facto minimum-wage conditions at part-time (50%) working hours.

[55]Austria, Belgium, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Lithuania, Latvia, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom.

[56]Belgium, Czechia, Estonia, Finland, France, Greece, Hungary, Ireland, Italy, Lithuania, Latvia, Luxembourg, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, United Kingdom

[57]For instance, benefit size of 10% for the first child in a given country in a given year means that the total benefits received by a middle-income household as defined in this paper corresponded to a 10% boost to the income of the household in January of the relevant year. Benefit size of, for instance, 6% for a second child would mean that the benefits increased the household income by an additional 6%, i.e. compared to if the household contained only one child. The same logic applies for the third and fourth child, respectively.

[58]The OECD TaxBen simulator includes all types (direct or tax-based) of income-supplementing (i.e. excluding parental leave) monetary support issued to parents and legal guardians. All relevant support types are listed in Appendix 1.1.

Macroeconomic factors	Real GDP growth[59]	OECD
	Unemployment	OECD
	Inflation	World Bank
	Debt-to-GDP ratio	OECD
	Share of elderly population[60]	World Bank
Sociocultural factors	Immigration stock[61]	United Nations
	Pro-immigration attitudes[62]	European Social Survey
	Anti-immigration attitudes (for ethnicities different than own)[63]	European Social Survey
Political (f)actors	Pronatalist government orientation[64]	United Nations World Population Policies
	Left-wing party strength in government[65]	Comparative Political Dataset (CPDS), University of Zurich
	Right-wing party strength in government[66]	Comparative Political Dataset (CPDS), University of Zurich

The method used in the analysis is pooled time series regression with fixed country effects and panel corrected standard errors (Dielman 1983; Ward & Leigh 1993) conducted in the statistical software R (PCSE and PLM packages). This method captures differences within countries across

[59]Real GDP growth is the only favourable macroeconomic factor tested. For the sake of conciseness, the hypotheses stated in Table 3.1 jointly refers to macroeconomic *constraints* (i.e. *low* GDP growth). In the analysis itself, the expected relationships for this variable are, of course, the opposite to those for the remaining macroeconomic factors. .

[60]The share of people 65+ years old in the population relative to the share of working-age population (18-64 years old).

[61]The combined share of foreign-born population.

[62]Derived from responses to the survey statement: Immigrants make country better or worse place to live. Higher values denote more positive/pro-immigration attitudes. For the sake of conciseness, the hypotheses stated in Table 3.1 jointly refer to sociocultural *constraints* (i.e. *low* pro-immigration attitudes). In the analysis itself, the expected relationships for this variable are, of course, the opposite to those for the remaining two sociocultural factors.

[63]Derived from responses to the survey statement: Allow few/many immigrants of a different race/ethnic group from majority. Higher values denote more anti-immigration attitudes.

[64]Derived from survey responses by national governments denoting a declarative commitment to increasing the birth rate and the ongoing implementation of policy to achieve this goal.

[65]The share of parliamentary seats occupied by a left-wing party while in government.

[66]The share of parliamentary seats occupied by a right-wing party while in government.

time and aggregates them into cumulative estimates. It is well-suited to this analysis, as child benefits can take a wide range of (tax-based or direct) forms, each of which is subject to change from one year to the next, even if only in the form of a (lack of a(n)) inflation adjustment, thus affecting benefit size on the dependent variable. The time series datasets (Appendix 3.1 and 3.2), separately for the middle-income and low-income households, have been generated by arranging all variables vertically in Excel and listing their values for each country-year combination[67]. The independent variables were lagged by one year (in line with Ferragina & Seeleib-Kaiser 2015) to allow time for the factors of interest to have been able to feature into the policymaking calculus and affect benefit size. This means that each of the 19 pairs of values making up the regression estimates consists of values on the independent variable for a given year and values on the dependent variable for the previous year. The regression models also included a correction for autocorrelation and standardisation bringing all observations into the same range and allowing for a meaningful comparison between the variables. Finally, a jackknife robustness test[68]was performed to ensure that outlier countries on the dependent variable do not excessively influence the results.

Results

Table 3.3 below describes the dependent variable for the 20 years of interest[69], showing a clear

[67]The middle-income dataset consists of 10420 observations (including 704 missing values), while the low-income dataset contains 7843 observations (including 458 missing values). Missing values have been replaced with the mean values for the corresponding columns.

[68]In each model, only the countries whose values differed from the mean value in the sample by at least two standard deviations (upwards or downwards) were excluded; in models where no such countries existed in the sample, the countries with a deviation of at least one standard deviation in either direction were treated as outliers, instead. This approach resulted in the following list of outliers:

- *total*: MI benefit size – Belgium, Hungary, Slovakia (> 1 SD); Iceland, Spain, United Kingdom (< 1 SD); LI benefit size – Luxembourg, Poland, Slovakia (> 1 SD); Spain (< 2 SD); MI + LI benefit size – Hungary, Luxembourg, Poland, Slovakia (> 1 SD); Spain (< 2 SD); MI/LI benefit size ratio – Hungary, Lithuania (> 1 SD); Czechia, Ireland, United Kingdom (< 1 SD)
- *first children*: MI benefit size – Hungary, Slovenia (> 1 SD); Greece, Iceland, Spain (< 1 SD); LI benefit size – Czechia, Poland, Slovakia (> 1 SD); Greece, Portugal (< 1 SD)
- *second children:* MI benefit size – Hungary (> 1 SD); Iceland, Spain (< 1 SD); LI benefit size – Hungary, Luxembourg, Poland, Slovakia (> 1 SD); Greece, Lithuania, Netherlands, Portugal (< 1 SD)
- *third children*: MI benefit size – Hungary (> 2 SD); Iceland, Netherlands, United Kingdom (< 1 SD); LI benefit size – Estonia, Hungary, Latvia, Poland, Slovakia (> 1 SD); Greece, Lithuania, Netherlands, Slovenia (< 1 SD)
- *fourth children*: MI benefit size – Italy (> 2 SD); Hungary, Netherlands, United Kingdom (< 1 SD); LI benefit size – Latvia, Poland (> 1 SD); Netherlands, Spain (< 1 SD)

[69]Due to a lack of space, the values on the independent variable are not shown here, but they are included in Appendix 3.1 and Appendix 3.2.

upward trend over time. In 2021, child benefits for the two income categories combined (MI + LI) were larger by more than a sixth than in 2002, in line with the trend of growth in benefit size discussed in the introduction (e.g. Daly & Ferragina 2018), which was interrupted only for several years in the aftermath of the Great Recession. They were also larger for the low-income household, typically by close to two times, compared to the middle-income household, mostly because of lower salaries (i.e. base values for the calculations) in the former household type, but often also because the size of the benefits themselves was larger in absolute terms. However, the low-income household benefit size increased less dramatically over time, becoming only 7,5% higher in 2021 than in 2002, as opposed to an increase by 39,2% for middle-income households. In terms of birth order, for middle-income households, child benefits have been larger (in per-child terms) for third and fourth children than for first and second children in almost every year in the sample, with the gap widening even further in more recent years (mainly as a result of increased size for third children). For low-income households, however, the benefits tend to be smaller for higher birth orders (especially fourth children). Finally, the middle-income to low-income benefit size ratio tends to increase over time, rising from 0,47 in 2002 to 0,61 in 2021. Unlike the aggregate growth in benefit size, which matches the short- and long-term trends documented in the literature, the growth in this ratio observed over these two decades reverses earlier trends towards larger means-testing (Ferrarini et al. 2012).

Table 3.3: Descriptive overview of the dependent variable (benefit size and design) by year

					Middle-income household				Low-income household			
Year	MI Total Ben. Size	LI Total Ben. Size	MI + LI Ben. Size Ratio	MI/LI Ben. Size Ratio	Ben. size (1st ch.) %	Ben. size (2nd ch.) %	Ben. size (3rd ch.) %	Ben. size (4th ch.) %	Ben. size (1st ch.) %	Ben. size (2nd ch.) %	Ben. size (3rd ch.) %	Ben. size (4th ch.) %

2002	18,1	38,5	56,6	0,47	4,36	4,66	7,02	5,71	8,23	10	12,2	10,9
2003	17,8	37,7	55,5	0,47	4,57	4,52	6,74	5,61	8,19	9,27	12,2	10,9
2004	18,3	39,5	57,8	0,46	5,07	4,71	6,49	5,63	8,66	10,7	12,2	10,1
2005	22,4	39,1	61,5	0,57	5,2	4,91	6,49	5,85	9,15	10,4	12	9,5
2006	22	38,1	60,1	0,58	4,87	4,95	6,61	5,54	8,45	10,1	11,9	8,8
2007	22,7	38,9	61,6	0,58	5,01	4,66	7,16	5,85	8,67	10,3	11,7	9,5
2008	23,3	39,6	62,9	0,59	5,37	4,94	7,19	5,81	8,80	9,9	12,1	9,9
2009	23,1	41,6	64,7	0,56	5,1	5,02	6,83	6,12	9,48	11,2	12,2	9,8
2010	22,9	41,2	64,1	0,56	5	4,85	6,71	6,35	9,28	10,7	12,2	10,2
2011	23,2	39,6	62,8	0,59	5,38	5,61	6,07	6,18	8,97	10,3	11,5	9,9
2012	23,7	39,1	62,8	0,61	5,18	5,82	6,56	6,19	9,34	10,2	11,7	9,1
2013	23,3	39,5	62,8	0,59	5,07	5,61	6,45	6,15	9,3	10,7	11,9	8,8
2014	21,8	38,6	60,4	0,56	5,09	5,59	5,71	5,39	9,4	9,73	12	8,6
2015	23,2	40,4	63,6	0,57	4,99	5,35	6,88	5,96	9,29	10,5	12,8	9
2016	25,5	42,2	67,7	0,6	4,94	5,15	8,42	6,97	10,1	10,2	13,3	9,7
2017	25,7	41,1	66,8	0,63	4,87	5,25	9	6,57	10,1	11,1	12,4	9,8
2018	24,8	41,9	66,7	0,59	4,64	5,02	8,81	5,35	9,56	11,1	13,3	9,7
			68,7	0,59	4,85	5,58	8,92	6,26	10,3	10,4	13,9	10,2

2019	25,6	43,1										
2020	25,6	42,8	68,4	0,59	5,54	5,29	8,66	6,16	10,1	10,1	13,6	10,1
2021	25,2	41,4	66,6	0,61	5,05	6,02	8,02	6,12	9,75	10,4	13,4	10,2

Table 3.4 below describes the dependent variable for the 26 countries of interest. For the middle-income households, the total benefit size is at least one standard deviation higher than the mean value of the sample in Belgium, Hungary, and Slovakia[70], and at least one standard deviation lower than the mean in Iceland, Spain, and the United Kingdom. These findings correspond to the family policy literature consensus, with Hungary in particular ranking among the highest family policy spenders (e.g. Speder et al. 2016). The observed list of outlier countries changes based on the birth order, with Hungary switching from being a positive outlier for the first three children to a negative one for the fourth child, in line with the much-problematised (Guy & Kovacz 2006) retrenchment for fourth children discussed in Paper 1 of this thesis. In addition to total benefit size, the United Kingdom is also a negative outlier for benefit size for third and fourth children, but not for first and second children, which can be attributed to its two-child benefit cap (e.g. Andersen et al. 2022).

For the low-income households, the total benefit size is at least one standard deviation higher than the mean value of the sample in Luxembourg, Poland, and Slovakia, and more than two standard deviations lower than the mean in Spain. The observed list of outliers changes based on the birth order, but there is a general regional pattern of mostly East European countries constituting positive outliers (with Poland featuring as one in all four birth orders) and South European countries constituting negative outliers (Greece for the first three children and Portugal for the first two). In terms of differences between household income categories, low-income households receive larger benefits than middle-income households in all countries except Hungary and Lithuania. However, the impression of an exclusion of (especially low-income) fourth children discussed with regards to Hungary is not observed for Lithuania, as its benefit size

[70]For the last six years of the sample, the countries in this group were joined (and overtaken) in terms of total benefit size by Poland as a result of its sizeable and explicitly pronatalist Family 500+ child benefit package.

for (both middle-income and low-income) fourth children is, in fact, the second-largest among the four birth orders in the country.

Table 3.4: Descriptive overview of the dependent variable (benefit size + design) by country

					Middle-income household				Low-income household			
Country	**MI Total Ben. Size**	**LI Total Ben. Size**	**MI + LI Ben. Size Ratio**	**MI/LI Ben. Size Ratio**	**Ben. size (1st ch.) %**	**Ben. size (2nd ch.) %**	**Ben. size (3rd ch.) %**	**Ben. size (4th ch.) %**	**Ben. size (1st ch.) %**	**Ben. size (2nd ch.) %**	**Ben. size (3rd ch.) %**	**Ben. size (4th ch.) %**
Austria	28,4				9,1	5,9	6,5	6,4				
Belgium	36,3	42,5	78,8	0,85	5,2	8,1	12,2	10,8	6,9	10,4	13,7	11,5
Czechia	21,8	47,7	69,5	0,46	7,4	3,1	5,4	5,9	13,2	12,3	11,9	10,4
Denmark	16,2				3,9	3,9	3,7	4,7				

Estonia	33	41,3	74,3	0,8	4	6,1	14,6	8,3	6,6	9,6	16,9	8,5
Finland	15				5,2	2,9	3,3	3,5				
France	34,1	38,8	72,9	0,88	4,8	7,4	13,7	8,1	7	9,1	13,8	9
Germany	22,7				6,1	5,5	5,3	5,8				
Greece	17	25,9	42,9	0,66	1,4	1,6	7,2	6,8	3	3,2	7,7	11,9
Hungary	50,4	47,8	98,2	1,05	13,2	15,8	19	2,5	12,6	16	18,2	4,4
Iceland	9,1				0,9	1,8	2,4	3,9				
Ireland	14,8	42,4	57,2	0,35	3,7	3,5	3,8	3,8	8,1	10,9	11,6	11,8
Italy	31,2				4,1	3,6	7,4	16,2				
Latvia	26,9	47,6	74,5	0,57	6,2	6,6	7,5	6,6	6,8	11,7	16,8	13,1
Lithuania	29	28,6	57,6	1,01	3,4	4,8	12,9	7,8	8,5	5,9	7,2	7,4
Luxem-bourg	33	57,3	90,3	0,57	6,8	8,2	9,8	8,2	12,4	15,5	16,2	13,2
Nether-lands	12	24,1	36,1	0,5	4,5	2,4	2,5	2,6	11,3	5,1	4	3,8
Norway	13				3,4	3,3	3,2	3,1				
Poland	32,1	62,6	94,7	0,51	2,9	8	10,8	10,4	13,1	15,8	17,8	15,8
Portugal	20,5	33,5	54	0,61	3,5	6,7	6,4	3,9	5,2	4,8	12	11,5
Slovakia	44,5	59,6	104,1	0,75	7,8	11,1	14,9	10,7	14	16,2	16,6	12,9
Slovenia	24,5	32,1	56,6	0,76	11,3	4,6	4,4	4,2	8,7	8,3	7,7	7,4
Spain	8,1	9,81	17,91	0,83	1,8	1	3,7	1,6			8,9	3,8
Sweden	16,1				3,2	3,4	4,1	5,4				
Switzer-land	13				3,3	3,1	2,9	3,7				
United Kingdom	10,3	41,4	51,7	0,25	3,7	1,9	1,9	2,8	10,7	11,4	10,1	9,1
Mean	23,6	40,4	66	0,69	5,036	5,2	7,3	6,1	9,2	10,4	12,4	9,6
SD	11,5	14,2	22,8	0,23	2,876	3,3	4,7	3,3	3,4	4,38	4,6	4
Outlier cutoff (>)	45,9	54,5	88,8	0,92	10,788	11,8	16,7	12,7	12,7	14,8	17	13,6
Outlier cutoff (<)	12,4	12,1	20,3	0,46	2,161	1,9	2,6	2,7	5,8	6	7,8	5,6

Tables 3.5 and 3.6 below show the regression models for the middle-income household and low-income household, respectively, testing the associations between the three sets of factors of interest and child benefit size (in the aggregate as well as for each of the four birth orders)[71]. Separate regressions were run cumulatively for all factors of interest as well as stepwise for each

[71]The results are reported in further detail in Appendix 3.3.

of the three sets of factors (marked in different colors). The results provide partial support for H1, as total benefit size is negatively associated with immigration stock in most of the models (especially for the middle-income households), although the strength of the association varies considerably depending on the type of model (stepwise as opposed to cumulative) and (to a lesser extent) on the exclusion of outliers in the jackknife robustness test. For every 10% increase in immigration stock , total benefit sizedecreases by between 2,2% and 5,9%. More support for an inverse relationship between immigration and benefit size can also be derived for the positive association between *pro*-immigration attitudes and total benefit size for the two income categories combined (Table 3.6), where benefits rise by between 1,2% and 1,9% with every 10% increase in pro-immigration attitudes. Moreover, the expected negative association for inflation is also observed, although only in the two models combining the two income categories together (Table 3.6), where benefit size declines by anywhere between 0,6% and 1,2% for every 10% increase in inflation. . .

Table 3.5: Overview of the regression models – middle-income household[72]

MI agg (step-wise[73])	*MI agg*	*MI 1st (step-wise)*	*MI 1st*	*MI 2nd (step-wise)*	*MI 2nd*	*MI 3rd (step-wise)*	*MI 3rd*	*MI 4th (step-wise)*	*MI 4th*

[72]Statistical significance is denoted in the bolded cells in Table 3.4 as follows: "." =statistically significant (p <0.05); "*" = highly statistically significant (p <0.01); "**" = very highly statistically significant (p <0.001).

[73]Separate models for each set of factors, i.e. macroeconomic, sociocultural, and political (as reported in further detail in Appendix 3.3).

GDP	0,57	0,64	-0,02	-0,07	0,27	0,31	0,32	0,35	0,21	0,27
Unemployment	-0,03	-0,02	-0,05	-0,05	0	0	-0,11	-0,10	-0,10	-0,10
Inflation	-0,04	0	-0,02	-0,01	**-0,05*** (-0,05 – -0,04)	**-0,05.** (-0,06 – -0,03)	**-0,09.** (-0,10 – -0,08)	-0,09	-0,03	-0,04
Debt	0,06	0,08	0,08	0,06	0,11	0,12	0,04	0,04	0,02	0,05
Share of elderly	0,07	0,17	-0,05	0,01	-0,05	-0,06	0,06	0,17	0,03	0,05
Immigration stock	**-0,22*** (-0,26 – -0,24)	**-0,52***** (-0,59 – -0,52)	**-0,22*** (-0,26 – -0,17)	**-0,22*** (-0,08 – -0,05)	-0,11	**-0,19**** (-0,21 – -0,19)	-0,15	**-0,37*** (-0,39 – -0,34)	-0,10	**-0,25*** (-0,26 – -0,25)
Pro-immigration attitudes	0,11	0	0,08	0,08	0,16	0,11	0,02	-0,08	0,13	0,08
Opposition to immigration from other ethnicities	0,08	-0,06	0,02	0,03	0,06	0,05	-0,02	-0,02	0,17	0,16
Pronatalist government orientation	0	-0,01	-0,04	-0,04	0,01	0,02	0,02	0,03	0,02	0,03
Left-wing party strength	0	-0,06	-0,04	-0,03	-0,04	0	0	0,02	0,02	0,05
Right-wing party strength	0,03	-0,08	-0,10	-0,09	0,04	0,08	-0,03	0	0,10	**0,12.** (0,11 – 0,15)

Table 3.6: Overview of the regression models – low-income household and for both income categories

	LI agg (step-wise)	*LI Agg*	*LI 1st (step-wise)*	*LI 1st*	*LI 2nd (step-wise)*	*LI 2nd*	*LI 3rd (step-wise)*	*LI 3rd*	*LI 4th (step-wise)*	*LI 4th*	*MI + LI agg (step-wise)*	*MI + LI agg*	*MI/LI ratio (step-wise)*	*MI/LI ratio*
GDP	-0,27	-0,13	**-0,67*** (-0,68 - -0,52)	-0,52	**-0,47*** (-0,45 - -0,29)	-0,36	-0,13	-0,18	0,14	0,27	-0,01	0,17	0,40	0,43
Unemploy-ment	0,03	0,03	-0,02	-0,01	0,05	0,05	0,07	0,08	-0,14	-0,14	0	0	**-0,11.** (-0,14 – -0,13)	**-0,12.** (-0,15)

Inflation	-0,08	-0,08	-0,05	-0,05	-0,04	-0,04	**-0,14.** (-0,16 - -0,12)	-0,14	-0,06	-0,05	**-0,12*** (-0,12 - -0,09)	**-0,11.** (-0,11 - -0,06)	0,05	0,05
Debt	-0,18	-0,09	-0,09	-0,05	-0,09	0	-0,28	-0,29	-0,17	-0,05	-0,20	-0,10	0,20	0,24
Share of elderly	0,25	0,23	0,38	0,34	0,20	0,21	0,25	0,32	0,11	0,11	0,31	0,27	0,04	0,02
Immigration stock	-0,22	**-0,26.** (-0,47 – 0,27)	0	-0,06	-0,08	-0,14	-0,44	-0,38	-0,30	-0,33	-0,19	-0,30	0,15	-0,03
Pro-immigration attitudes	0,15	0,05	0,25	0,11	0,05	-0,06	0,13	0,03	-0,04	-0,06	**0,19.** (0,12 – 0,18)	0,06	-0,01	-0,07
Opposition to immigration from other ethnicities	0,17	0,17	0,26	0,23	0,15	0,12	0,04	0,06	0,06	0,05	0,15	0,15	-0,09	-0,10
Pronatalist government orientation	0	0,12	0,03	0,04	-0,03	-0,02	0	0	-0,02	0	0	0,02	0,04	0,05
Left-wing party strength	0,02	0	-0,01	-0,05	0,04	0	-0,10	-0,13	0,05	0,05	0,02	0,01	0,02	0,08
Right-wing party strength	0	-0,05	0,04	-0,04	0,03	-0,02	-0,14	**-0,17.** (-0,17 - -0,13)	0,02	0,02	0,03	0	0,06	0,12

In line with H2, immigration stock also exhibits a statistically significant negative association with benefit size in most of the birth order-specific models, although only for middle-income households. The birth order-specific analyses also produced several statistically significant associations for the macroeconomic factors (in the expected directions under H2). For every 10% increase in inflation, benefit size for second and third children decreases by between 0,3% and 1,6% depending on the income category, type of model, and the exclusion of outliers. The associations with GDP growth are stronger but limited to the low-income household, two specific birth orders, and the cumulative models, as benefit size for low-income second and third children falls by anywhere between 2,9% and 6,8% for every 10% increase in GDP growth, depending on the relevant specifications.

As for H3, where two conflicting hypotheses were proposed (H3a and H3b), some tension is indeed observed, although it is household income rather than birth order which proved to be the differentiating factor for the two statistically significant associations for right-wing party

strength, both of which are observed for higher birth orders (third and fourth). For middle-income fourth children (Table 3.5), benefit size rises between 1,1% and 1,5% for every 10% increase in right-wing party strength. Yet, for *low*-income third children (Table 3.6), benefit size falls by between 1,3% and 1,7% for every 10% increase in right-wing party strength. Finally, H4 is confirmed in only one model and for only one variable, as the middle- to low-income benefit size ratio falls by between 1,1% and 1,5% for every 10% increase in unemployment.

Discussion and Limitations

Child benefit size tends to be lower during periods of higher inflation, both in total as well as for second and third children specifically. No statistically significant associations were found between total benefit size and GDP, unemployment, public debt, or the share of elderly population. This mixed finding provides partial support to the view of child benefits as forms of discretionary spending (Streeck & Mertens 2013), as they appear to be sensitive to macroeconomic conditions, but it does not allow for any stronger claims (Pierson 2002) about child benefit size being heavily determined by macroeconomic factors, thus cautioning against viewing them as the primary victims of budgetary constraints.

Zooming into the finding on inflation, one can observe considerable continuity with the existing literature on social policy design. Past research has shown that social spending is often inadequately indexed to inflation or does not take inflation into account at all, especially when it comes to cash-based support (Streeck & Mertens 2013). Past research has also found that reductions in public and social spending often manifest themselves in real terms (ibid), even when featuring in national budget sheets as nominal *increases* in spending, as policymakers might prefer to cut costs by allowing the value of public expenditures to be eroded by inflation, rather than by pursuing explicit retrenchment. Thus, the underlying explanation behind inflation as a macroeconomic driver of benefit size might, in fact, be political.

This finding resonates particularly strongly at the time of writing. Over the past several years, unusually high inflation has not only undermined public spending, but it has also been

consistently identified as a leading issue of concern among voters and a strong predictor of anti-establishment, populist, and far-right voting patterns (e.g. Stancheva 2024). It thus seems worth investigating through further research whether the already-documented socioeconomic and socio-political ramifications of inflation might feature even more strongly in contexts where price hikes are accompanied or followed by reductions in the size of child (and other social or public) benefits.

In terms of the sociocultural factors, benefit size tends to be lower when the share of foreign-born population is higher for the two household income types together as well as when disaggregated by household income. It also tends to be higher (for the two income categories cumulatively) when pro-immigration attitudes are higher, suggesting that anti-immigration sentiment might be an obstacle to high benefit sizes. These findings contribute to a rich and continuously growing literature on the importance of immigration stock as a policy driver, at a time of record-high immigration rates and well-documented increases in anti-immigration attitudes in many European countries (Kokonen & Linde 2023; Neureiter & Schulte 2024). The observed negative association between immigration stock and benefit size matches the previously summarised consensus around child benefits as one of the family and social policies from which immigrants are the most likely to be excluded or otherwise discriminated (Brady & Finnigan 2014; Eick 2024). The association is, however, not consistent with the broader proposition in the sociological literature embedded into the previously summarised Intergroup Contact Theory (Pettigrew 1998; Schlueter & Scheepers 2010), which predicts that stronger exposure to immigration should induce a *more* inclusive environment for immigrants, suggesting that the applicability of the theory might be limited to specific types of policies.

When it comes to the findings regarding the drivers of benefit size by birth order, immigration stock emerged again as a negative predictor of benefit size for all four birth orders in middle-income households (especially for higher birth orders). This finding can be interpreted in a similar fashion to the aggregate finding above. It is particularly conceivable that high immigration might be constraining benefit size for large families, which are disproportionately likely to consist of foreign-born benefit recipients (Rindfuss et al. 2016; Stichnoth & Yeter 2016). The mechanism behind this relationship is beyond the scope of this paper: it could be that higher immigration

rates make policymakers themselves more welfare-chauvinistic, or that they make them more likely to adopt welfare-chauvinistic policies as a response to a (perceived) shift in voter preferences. It is worth highlighting, however, the apparent paradox of the associations not only *not* being higher for higher birth orders but being in fact absent altogether for these birth orders in low-income households. While this aspect requires further research, one possible explanation would be that child benefits for low-income large families are somewhat cushioned from immigration-related considerations. In fact, the relevant debate in one of the most notable country cases of benefit limits for higher birth orders, United Kingdom, has indeed primarily revolved – at least on the surface – around broader debates regarding the size of the welfare state and the "(un)deservingness" of (all) low-income parents with large families (e.g. Hobson 2022), rather than around ethnicity.

The remaining observed drivers of benefit size by birth order refer to (a more limited number of) specific children and specific factors of interest. The positive association between real GDP growth and benefit size for first and second low-income children matches the literature on the effects of macroeconomic factors referenced earlier. For second and third children in both middle- and low-income households, inflation again emerges as being negatively associated with benefit size, which, especially in the case of second children, might be attributable to the relatively high number of such children in any population (compared to fourth children), making benefits for these children particularly vulnerable to inflation spikes. As for right-wing party strength, the observed positive association with benefit size for middle-income fourth children matches existing evidence of the increasingly national-conservative character of child benefits. As has been extensively documented in the academic literature (Cook et al. 2022; Haskova et al. 2022; Szalma et al. 2022), right-wing governments have been disproportionately likely to introduce, maintain, and/or expand pronatalist policy packages. The rationale behind the stronger incentivisation of higher birth orders might be informed by the average fertility preferences in Europe, which stand between two and three children (Sobotka & Beaujouan 2014), as well as the assumption that most people will have a certain number of children regardless of policy, suggesting that benefit size for lower birth orders need not be prioritised. Moreover, the evidence of a positive association with right-wing governments in this paper

suggests that the observed shift in the literature from *lower* benefit spending by right-wing parties in the past to no association in more recent decades (Ferragina & Seeleib-Kaiser 2015) might have now advanced further to higher spending altogether on the part of such parties. This finding also resonates with some country-level cases, such as Germany, where major family policy improvements over the past few decades have occurred under the main centre-right party (Fleckenstein 2011).

It is, however, important to highlight the opposite finding for low-income households, where right-wing party strength is negatively associated with benefit size for third children. This finding echoes the broader conclusion reached in several parts of this thesis (especially Paper 1) of governments, especially those of a right-wing orientation, engaging in selective increases of child benefits, which often do not encompass large low-income families, possibly also due to ethnonationalist considerations (e.g. Guy and Kovacz 2006; Mari 2024). Even explicitly pronatalist right-wing policymakers, as has been the case in Hungary (Speder 2016), have sometimes been shown to selectively incentivise births only among more affluent beneficiaries, highlighting one of the biggest contradictions as well as limitations of contemporary pronatalism. Furthermore, the middle-income to low-income ratio is negatively associated with unemployment, which matches some of the previously discussed findings regarding the negative effects of macroeconomic constraints on benefit size (e.g. Streeck & Mertens 2013). In an unfavourable macroeconomic climate, it appears unsurprising that policymakers tend to downsize child benefits more for middle-income households, which would be less likely than low-income households to be pushed into poverty as a result of such cuts.

Finally, it would be impertinent to solely discuss the observed results for the tested factors in isolation. The fact that for two of the factors returning statistically significant results, the associations are stronger in the cumulative than in the stepwise models (as is the case for immigration stock), or are statistically significant only in (some of) the cumulative models (as is the case for right-wing ruling party orientation), suggests that the tested factors might sometimes be mutually reinforcing. The spirit of this finding matches several prominent strands of literature, including both the scholarship on the frequently socioeconomic roots of intolerant public perceptions and responses to demographic trends (Margalit 2019; Vogt Isaksen 2019), as well as

that on the role of policymakers in shaping (Slothuus & Bisgaard 2020) – but also responding to (Sevenans 2021) – public attitudes.

These findings ought to be considered in light of several important limitations. An obvious one relates to the operationalisation of immigration stock, which emerged as the factor most commonly associated with child benefit size. The broad timeframe and country coverage in this paper prevented an analysis between different time periods and/or levels of immigration stock. The latter modification would have been crucial for a more precise contribution to the Intergroup Contact Theory literature, whose postulates are strongly contingent upon the exact level of (and rate of change in) foreign-born population, whose nuances might not be fully captured by a 20-year timeframe. In fact, such an exercise in disaggregation might have been beneficial also for the remaining factors, which could in the future even be studied qualitatively (e.g. through Qualitative Comparative Analysis) in an effort to identify the precise combination of drivers conducive to different levels and patterns of benefit size and design over time.

The lack of disaggregation is also a limitation in terms of the country sample, as a large-N study, while beneficial in terms of obtaining statistical significance and increased generalisability, conceals some of the considerable variation in Europe on both the independent and dependent variable in this paper. This limitation seems particularly noteworthy with regard to the strong variation in welfare regimes and other path dependencies across Europe, whose ability to absorb macroeconomic constraints and/or sensitivity to sociocultural and political factors might be heavily influenced by the type of institutional configurations in place. However, this limitation was partly overcome through the jackknife robustness tests, which showed that none of the statistically significant results in the paper were solely attributable to outlier countries with either the highest or lowest benefit sizes in the sample. Finally, child benefits, especially when operationalised as they have been here, are extremely broad policy instruments, whose future disaggregation, especially between tax-based and allowance-based benefit forms, might provide considerably different implications in terms of the associated factors of interest.

Conclusion

This paper explored the association between five macroeconomic factors, three sociocultural factors, and three political factors, and aggregate child benefit size and variation by birth order and household income in 26 European countries (17 for the low-income household) between 2002 and 2021. It found that all three types of factors tested were sometimes linked to child benefit size, although the presence and size of specific factors varied by birth order and household income. The most consistently (negatively) associated factor across the regression models was immigration stock, but in some of the models, child benefit size was also associated with inflation (negatively), GDP (positively), pro-immigration attitudes (positively) and right-wing party strength (positively and negatively depending on household income). Moreover, the difference in benefit size between middle- and low-income households was generally higher in instances of higher unemployment. These findings reinforce the scholarly consensus around child benefits as a multi-layered policy instrument, whose size can be facilitated and constrained by a complex interplay of macroeconomic, sociocultural, and political factors. They also highlight the difficulties associated with evaluating the role of such factors, given the relative scarcity of statistically significant results despite the large analytical sample.

In addition to the suggestions following from the limitations identified in the previous section, future work might also consider extending the empirical focus on both the independent and the dependent variable, which would (especially) in the latter case, however, also necessitate a different theoretical focus. The independent variable could also include sociocultural factors unrelated to immigration, including some which can be expected to facilitate (rather than constraining) benefit size, such as societal trends or norms permissive of larger government spending in general and/or family policy spending in particular (along the lines of Ferragina & Seeleib-Kaiser 2015), as well as political (f)actors that can be expected to constrain (rather than facilitate) benefit size, such as the strength of fiscally conservative political factors. As for political *actors*, the relative power of female politicians has been found to be highly significant, sometimes even more so than the ideological orientation of ruling parties, although more so for parental leave and childcare than for child benefits (Carter 1998; Iversen & Stephens 2008). For this and other reasons, the dependent variable could indeed be extended to other family policies, such as parental leave and childcare, either in their own right or in comparison to child benefits, which

would offer a more comprehensive contribution to the family policy literature, most notably by capturing welfare regime and gender-related dimensions.

Bibliography

Aaerts, E., Marx, I., & Parolin, Z. (2023). *Minimum income support for families with children in Europe and the US: Where does it stand?* (Working Paper No. 22/03). University of Antwerp.

Armitage, A. (2021). *From demographic security to demographic resilience: Towards an anthropology of multilateral policymaking in eastern Europe* (Doctoral dissertation). Geneva Graduate Institute.

Bahle, T. (1994). *Familienpolitik in Westeuropa: Ursprünge und Wandel im internationalen Vergleich*. Frankfurt: Campus.

Birnbaum, S., Ferrarini, T., Nelson, K., & Palme, J. (2017). *The generational welfare contract: Justice, institutions and outcomes*. Cheltenham, UK: Edward Elgar.

Bode, I. (2022). The (de-)institutionalisation of empowerment. The complex remake of child and family welfare arrangements in Western Europe. *Social Work and Society, 20(1),* 1–16.

Bornukova, K., Hernández, A., & Picos, F. (2024). *Investing in children: The impact of EU tax and benefit systems on child poverty and inequality* (JRC Working Papers on Taxation and Structural Reforms No. 2/2024).

Bradshaw, J., & Nieuwenhuis, R. (2020). Poverty and the family in Europe. In N. F. Schneider & M. Kreyenfeld (Eds.), *Research handbook on the sociology of the family* (pp. 303–318). Elgar.

Brady, D., & Finnigan, R. (2014). Does immigration undermine public support for social policy?. *American sociological review*, *79*(1), 17-42.

Bremer, B., & Bürgisser, R. (2023). Public opinion on welfare state recalibration in times of austerity: Evidence from survey experiments. *Political Science Research and Methods, 11(1),* 34–52.

Blum, S., Formánková, L., & Dobrotić, I. (2014). Family policies in 'hybrid' welfare states after the crisis: Pathways between policy expansion and retrenchment. *Social Policy & Administration, 48(4),* 468–491.

Bruno, D., Sorando, R., Álvarez-Farizo, B., Castellano, C., Céspedes, V., Gallardo, B., Jiménez, J. J., … Comín, F. A. (2021). Depopulation impacts on ecosystem services in Mediterranean rural areas. *Ecosystem Services, 52.* Article 101367.

Calhoun, C. (2017). Populism, nationalism and Brexit. In W. Outhwaite (Ed.), *Brexit: Sociological responses* (pp. 57–76). Anthem Press.

Campbell, J. L. (2004). *Institutional change and globalization*. Princeton University Press.

Carter, J. (1998). Postmodernity and the fragmentation of welfare. New York: Routledge.

Clasen, J., & Siegel, N. A. (2007). Comparative welfare state analysis and the 'dependent variable problem.' In J. Clasen & N. A. Siegel (Eds.), *Investigating welfare state change: The "dependent variable problem" in comparative analysis* (pp. 3–12). Edward Elgar.

Daly, M., & Ferragina, E. (2018). Family policy in high-income countries: Five decades of development. *Journal of European Social Policy, 28(3),* 255–270.

Engster, D. (2008). *The heart of justice*. Oxford University Press.

Eick, G. M. (2024). *Welfare chauvinism in Europe: How education, economy and culture shape public attitudes*. Edward Elgar Publishing.

Ferragina, E. (2022). Welfare state change as a double movement: Four decades of retrenchment and expansion in compensatory and employment-oriented policies across 21 high-income countries. *Journal of Social Policy and Administration, 56(5),* 705–725.

Figari, F., Paulus, A., & Sutherland, H. (2011). Measuring the size and impact of public cash support for children in cross-national perspective. *Social Science Computer Review, 29(1),* 85–102.

Fidanovski, K. (2024). What policy functions are reflected in the distribution of financial support for parents by child age and birth order? An analysis of 28 European countries. *Social Policy & Administration, 58(3),* 458–473.

Fleckenstein, T. (2011). The politics of ideas in welfare state transformations: Christian democracy and the reform of family policy in Germany. *Social Politics, 18(4),* 543–571.

Fleckenstein, T., & Lee, S. (2014). The politics of postindustrial social policy: Family policy reforms in Britain, Germany, South Korea, and Sweden. *Comparative Political Studies, 47(4),* 601–653.

Fleckenstein, T., & Mohun Himmelweit, S. (2022). The politics of ideas in family policy: Parties, electoral competition, and shifting norms. In *Oxford handbook of family policy over the life course*. Oxford University Press.

Fukuyama, F. (2018). Why national identity matters. *Journal of Democracy*, *29*(4), 5-15.

Gauthier, A. (1996). *The state and the family: A comparative analysis of family policies in industrialized countries*. Clarendon Press.

Ghodsee, K. (2018). *Why women have better sex under socialism*. Vintage Books.

Goerres, A., & Vanhuysse, P. (2021). *Global political demography: The politics of population change*. Springer Nature.

Grzymala-Busse, A. (2017). Global populisms and their impact. *Slavic Review, 76*(S1), S3–S8.

Guy, W., & Kovacz, M. (2006). *EU-funded Roma programmes: Lessons from Hungary, Slovakia, and the Czech Republic*. Minority Rights Group International.

Hantrais, L. (2004). *Family policy matters: Responding to family change in Europe*. The Policy Press.

Haskova, H., Marikova, H., Sloboda, Z., & Popisilova, K. (2022). Childlessness and barriers to gay parenthood in Czechia. *Social Inclusion, 10(3).* Special issue.

Hogan, J., & Howlett, M. (Eds.). (2015). *Policy paradigms in theory and practice: Discourses, ideas and anomalies in public policy dynamics*. Palgrave Macmillan.

Inglehart, R., & Abramson, P. R. (1999). Measuring postmaterialism. *American Political Science Review, 93(3),* 665–677.

Inglot, T., Szikra, D., & Rat, C. (2022). *Mother, families, or children? Hungary, Poland, and Romania*. University of Pittsburgh Press.

Iversen, T. & Stephens, J. (2008). Partisan politics, the welfare state, and three worlds of human capital formation. *Comparative Political Studies*, 41 (4–5): 600–37.

Javornik, J. (2016). Maternal employment in post-socialist countries: Understanding the implications of childcare policies. In T. Roosalu & D. Hofacker (Eds.), *Rethinking gender, work and care in a new Europe: Theorizing markets and societies in the post-postsocialist era* (pp. 189–214). Palgrave Macmillan.

Kamerman, S., & Kahn, A. (Eds.). (1978). *Family policy: Government and families in fourteen countries*. Columbia University Press.

Kamerman, S. B., & Kahn, A. J. (2001). Child and family policies in an era of social policy retrenchment and restructuring. In K. Vleminckx & T. M. Smeeding (Eds.), *Child well-being, child poverty and child policy in modern nations* (pp. 501–526). Policy Press.

Kaufmann, F. (2002). Politics and policies towards the family in Europe: A framework and an inquiry into their differences and convergences. In F.-X. Kaufmann, A. Kuijsten, H.-J. Schulze, & K. P. Strohmeier (Eds.), *Family life and family policies in Europe, Vol. 2: Problems and issues in comparative perspective* (pp. 419–490). Oxford University Press.

Kokkonen, A., & Linde, J. (2023). A nativist divide? Anti-immigration attitudes and diffuse support for democracy in Western Europe. *European Journal of Political Research, 62(3),* 977–988.

Korpi, W. (1989). Power, politics, and state autonomy in the development of social citizenship: Social rights during sickness in eighteen OECD countries since 1930. *American Sociological Review, 54(3),* 309–328.

Korpi, W., & Palme, J. (2003). New politics and class politics in the context of austerity and globalization: Welfare state regress in 18 countries, 1975–95. *American Political Science Review, 97(3),* 425–446.

Kornai, J. (2015). Hungary's U-turn: Retreating from democracy. *Journal of Democracy, 26(3),* 34–48.

Krastev, I. (2016). What's wrong with East-Central Europe?: Liberalism's failure to deliver. *Journal of Democracy, 27(1),* 35–38.

Krastev, I., & Holmes, S. (2019). Populisms in Eastern Europe: A demographic anxiety. *Le Débat, 24(2),* 161–169.

Mari, G. (2024). Less for more? Cuts to child benefits, family adjustments, and long-run child outcomes in larger families. *Journal of Population Economics, 37(2),* 1–27.

Margalit, Y. (2019). Economic insecurity and the causes of populism, reconsidered. *Journal of Economic Perspectives*, *33*(4), 152-170.

Misra, J., Budig, M., & Moller, S. (2007). Reconciliation policies and the effects of motherhood on employment, earnings, and poverty. *Journal of Comparative Policy Analysis: Research and Practice, 9,* 135–155.

Neureiter, M., & Schulte, F. (2024). A tale of two logics: How solidarity and threat perceptions shape immigrant attitudes towards immigration in Western Europe. *West European Politics, 47(2),* 280–302.

Philipov, D., Liefbroer, A. C., & Klobas, J. (Eds.). (2013). *Reproductive decision-making in a macro-micro perspective.* Springer Nature.

Pierson, P. (2000). Increasing returns, path dependence, and the study of politics. *American Political Science Review, 94(2),* 251–267.

Pierson, P. (2002). Coping with permanent austerity: Welfare state restructuring in affluent democracies. *Revue française de sociologie, 43(2),* 369–406.

Plavgo, I., & Hemerijck, A. (2020). The social investment litmus test: Family formation, employment, and poverty. *Journal of European Social Policy, 1–15.* https://doi.org/10.1177/0958928720941134

Pfau-Effinger, B. (2004). Socio-historical paths of the male breadwinner model—An explanation of cross-national differences. *British Journal of Sociology, 55(3),* 377–399.

Reader, M., Portes, J., & Patrick, R. (2022). Does cutting child benefits reduce fertility in larger families? Evidence from the UK's two-child limit (Discussion Paper No. 15203). Institute of Labor Economics (IZA).

Saraceno, C. (2022). *Advanced introduction to family policy.* Elgar Advanced Introductions.

Saraceno, C., & Keck, W. (2010). Can we identify intergenerational policy regimes in Europe? *European Societies, 12(5),* 675–696.

Sevenans, J. (2021). How public opinion information changes politicians' opinions and behavior. *Political Behavior*, *43*(4), 1801-1823.

Shiffman, J., Skrabalo, M., & Subotic, J. (2002). Reproductive rights and the state in Serbia and Croatia. *Social Science & Medicine, 54(4),* 625–642. https://doi.org/10.1016/S0277-9536(01)00134-4

Skogstad, G. (Ed.). (2011). *Policy paradigms, transnationalism, and domestic politics.* University of Toronto Press.

Slothuus, R., & Bisgaard, M. (2021). How political parties shape public opinion in the real world. *American Journal of Political Science*, *65*(4), 896-911.

Speder, Z. (2016). Fertility decline and the persistence of low fertility in a changing policy environment—A Hungarian case study. In R. Rindfuss & M. Choe (Eds.), *Low fertility, institutions, and their policies: Variations across industrialized countries* (pp. 123–145). Springer.

Stanceva, S. (2024). Why do we dislike inflation? (Working Paper No. 32300). National Bureau of Economic Research.

Steensland, B. (2008). *The failed welfare revolution: America's struggle over guaranteed income policy.* Princeton University Press.

Streeck, W., & Mertens, D. (2013). Public finance and the decline of state capacity in democratic capitalism. In A. Schäfer & W. Streeck (Eds.), *Politics in the age of austerity* (pp. 25–58). Polity Press.

Swank, D. (2005). Globalisation, domestic politics, and welfare state retrenchment in capitalist democracies. *Social Policy and Society, 4(2),* 183–195.

Szalma, I., Haskova, H., Olah, L., & Takacs, J. (2022). Fragile pronatalism and reproductive futures in European post-socialist contexts. *Social Inclusion, 10(3),* 82–86.

Vanhuysse, P. (2006). *Divide and pacify: Strategic social policies and political protests in post-communist democracies*. Central European University Press.

Vanhuysse, P. (2009). Power, order and the politics of social policy in Central and Eastern Europe. In *Post-communist welfare pathways: Theorizing social policy transformations in Central and Eastern Europe* (pp. 53-70). London: Palgrave Macmillan UK.

Vanhuysse, P., Medgyesi, M., & Gál, R. I. (2023). Taxing reproduction: The full transfer cost of rearing children in Europe. *Royal Society Open Science, 10,* 230759.

Vlandas, T. (2023). From gerontocracy to gerontonomia: The politics of economic stagnation in ageing democracies. *The Political Quarterly, 94(3),* 452–461.

Vogt Isaksen, J. (2019). The impact of the financial crisis on European attitudes toward immigration. *Comparative Migration Studies*, *7*(1), 1-20.

Whitehead, A. L., Perry, S. L., & Baker, J. O. (2018). Make America Christian again: Christian nationalism and voting for Donald Trump in the 2016 presidential election. *Sociology of Religion, 79(2),* 147–171.

Wilk, S. (2020). The role of family policy in solving demographic problems: Study of the Polish Program Family 500+. *European Journal of Sustainable Development, 9(4),* 84–92.

Appendix 3.3

(Legend for the stepwise models: A – macroeconomic; B – sociocultural; C – political; JK (for all models with statistically significant results) = jackknife resampling test)

Middle-income aggregate

Coefficients:

lag(pdata$GDP, 1)	6.4278e-01	4.7221e-01	1.3612	0.174117
lag(pdata$Unemployment, 1)	-1.1978e-02	7.5466e-02	-0.1587	0.873960
lag(pdata$Inflation, 1)	-4.0090e-02	4.4037e-02	-0.9104	0.363116
lag(pdata$Debt, 1)	8.1931e-02	9.0336e-02	0.9070	0.364907
lag(pdata$PopulationOld, 1)	1.7310e-01	1.7329e-01	0.9989	0.318371
lag(pdata$Immigration, 1)	-5.1784e-01	1.5090e-01	-3.4318	0.000654 ***
lag(pdata$Immigration_att, 1)	-9.6142e-06	6.7474e-02	-0.0001	0.999886
lag(pdata$Anti.immigration_ethnic_att, 1)	6.2570e-02	1.1076e-01	0.5649	0.572405
lag(pdata$Pronatalism, 1)	1.2651e-02	1.9011e-02	0.6654	0.506105

```
lag(pdata$Gov_left, 1)                    6.0880e-02  5.6440e-02  1.0787 0.281307
lag(pdata$Gov_right, 1)                   8.2773e-02  7.7662e-02  1.0658 0.287072
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    140.35
Residual Sum of Squares: 115.16
R-Squared:      0.17943
Adj. R-Squared: 0.11479
F-statistic: 2.43684 on 11 and 25 DF, p-value: 0.031601
```

Middle-income aggregate – JK

Jackknife variances:

```
                        lag(pdata_jk$GDP, 1)                lag(pdata_jk$Unemployment, 1)
                                1.006209e-03                                2.309473e-04
                   lag(pdata_jk$Inflation, 1)                        lag(pdata_jk$Debt, 1)
                                8.062215e-05                                6.990351e-04
              lag(pdata_jk$PopulationOld, 1)                 lag(pdata_jk$Immigration, 1)
                                4.607393e-04                                1.310905e-03
           lag(pdata_jk$Immigration_att, 1) lag(pdata_jk$Anti.immigration_ethnic_att, 1)
                                2.150284e-05                                3.873787e-04
              lag(pdata_jk$Pronatalism, 1)                    lag(pdata_jk$Gov_left, 1)
                                7.041314e-06                                1.049872e-05
                lag(pdata_jk$Gov_right, 1)
                                2.464597e-04
```

Sample of jackknife results:

```
  lag(pdata_jk$GDP, 1) lag(pdata_jk$Unemployment, 1) lag(pdata_jk$Inflation, 1)
1            0.5679793                   -0.03637434                -0.03069706
2            0.6314209                   -0.06676824                -0.04865503
  lag(pdata_jk$Debt, 1) lag(pdata_jk$PopulationOld, 1) lag(pdata_jk$Immigration, 1)
1           0.07589145                      0.1933453                   -0.5156164
2           0.12876999                      0.1504156                   -0.5880292
  lag(pdata_jk$Immigration_att, 1) lag(pdata_jk$Anti.immigration_ethnic_att, 1)
1                     0.006853946                                     0.09786798
2                    -0.002420286                                     0.05850410
  lag(pdata_jk$Pronatalism, 1) lag(pdata_jk$Gov_left, 1) lag(pdata_jk$Gov_right, 1)
1                  0.009122021                0.09128172                 0.08221574
2                  0.014429116                0.08480138                 0.11361381
```

dropped

1 Belgium, Hungary, Slovakia
2 Iceland, Spain, United Kingdom

Middle-income aggregate – A

Coefficients:

```
                          Estimate Std. Error t-value Pr(>|t|)
lag(pdata$GDP, 1)           0.569192   0.580137  0.9811   0.3270
lag(pdata$Unemployment, 1) -0.025371   0.080408 -0.3155   0.7525
lag(pdata$Inflation, 1)    -0.040382   0.041690 -0.9686   0.3332
lag(pdata$Debt, 1)          0.058818   0.105677  0.5566   0.5781
lag(pdata$PopulationOld, 1) 0.065247   0.181689  0.3591   0.7197
```

```
Total Sum of Squares:    140.35
Residual Sum of Squares: 125.4
R-Squared:      0.1065
Adj. R-Squared: 0.048609
F-statistic: 0.942443 on 5 and 25 DF, p-value: 0.47102
```

Middle-income aggregate – B

Coefficients:

```
                                        Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Immigration, 1)               -0.219854   0.105098 -2.0919  0.03699 *
lag(pdata$Immigration_att, 1)            0.113697   0.099996  1.1370  0.25612
lag(pdata$Anti.immigration_ethnic_att, 1) 0.077780   0.139175  0.5589  0.57652
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    140.35
Residual Sum of Squares: 137.44
R-Squared:      0.020689
Adj. R-Squared: -0.03828
F-statistic: 2.5444 on 3 and 25 DF, p-value: 0.07892
```

Middle-income aggregate – B – JK

Jackknife variances:

```
               lag(pdata_jk$Immigration, 1)             lag(pdata_jk$Immigration_att, 1)
                                7.285035e-05                                   5.249798e-05
lag(pdata_jk$Anti.immigration_ethnic_att, 1)
                                7.286883e-05
```

Sample of jackknife results:

```
  lag(pdata_jk$Immigration, 1) lag(pdata_jk$Immigration_att, 1)
1                   -0.2402940                         0.1084465
2                   -0.2573645                         0.1229376
  lag(pdata_jk$Anti.immigration_ethnic_att, 1)
1                                   0.09641232
2                                   0.07933967
```

Dropped
1 Belgium, Hungary, Slovakia
2 Iceland, Spain, United Kingdom

Middle-income aggregate – C

Coefficients:

```
                           Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Pronatalism, 1) -0.0017102  0.0212289 -0.0806   0.9358
lag(pdata$Gov_left, 1)    -0.0022160  0.0460856 -0.0481   0.9617
lag(pdata$Gov_right, 1)    0.0277924  0.0614210  0.4525   0.6511

Total Sum of Squares:    140.35
Residual Sum of Squares: 140.04
```

```
R-Squared:      0.0022014
Adj. R-Squared: -0.057881
F-statistic: 0.115405 on 3 and 25 DF, p-value: 0.95025
```

Middle-income 1st children

Coefficients:

```
                                        Estimate Std. Error t-value Pr(>|t|)
lag(pdata$GDP, 1)                      -0.074636   0.222167 -0.3359  0.73707
lag(pdata$Unemployment, 1)             -0.046250   0.056891 -0.8129  0.41667
lag(pdata$Inflation, 1)                -0.013797   0.037729 -0.3657  0.71477
lag(pdata$Debt, 1)                      0.058550   0.104552  0.5600  0.57575
lag(pdata$PopulationOld, 1)             0.013122   0.110411  0.1189  0.90545
lag(pdata$Immigration, 1)              -0.219425   0.096703 -2.2691  0.02373 *
lag(pdata$Immigration_att, 1)           0.075501   0.065579  1.1513  0.25021
lag(pdata$Anti.immigration_ethnic_att, 1)  0.030714   0.069528  0.4417  0.65888
lag(pdata$Pronatalism, 1)              -0.036903   0.029682 -1.2433  0.21440
lag(pdata$Gov_left, 1)                 -0.025448   0.064882 -0.3922  0.69508
lag(pdata$Gov_right, 1)                -0.086089   0.081958 -1.0504  0.29409
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

```
Total Sum of Squares:    117.02
Residual Sum of Squares: 112.33
R-Squared:      0.040056
Adj. R-Squared: -0.035563
F-statistic: 1.84779 on 11 and 25 DF, p-value: 0.098725
```

Middle-income 1st children – JK

Jackknife variances:

```
                        lag(pdata_jk$GDP, 1)                lag(pdata_jk$Unemployment, 1)
                                4.580787e-04                                4.951429e-05
                 lag(pdata_jk$Inflation, 1)                        lag(pdata_jk$Debt, 1)
                                8.019300e-04                                1.430239e-04
              lag(pdata_jk$PopulationOld, 1)                lag(pdata_jk$Immigration, 1)
                                4.170834e-05                                2.375507e-04
           lag(pdata_jk$Immigration_att, 1) lag(pdata_jk$Anti.immigration_ethnic_att, 1)
                                2.186566e-04                                2.234394e-04
                lag(pdata_jk$Pronatalism, 1)                    lag(pdata_jk$Gov_left, 1)
                                4.750992e-04                                2.493604e-04
                  lag(pdata_jk$Gov_right, 1)
                                1.684423e-04
```

Sample of jackknife results:

```
  lag(pdata_jk$GDP, 1) lag(pdata_jk$Unemployment, 1) lag(pdata_jk$Inflation, 1)
1          -0.09255972                   -0.03475066                0.008213488
2          -0.13536527                   -0.02067738               -0.048423248
  lag(pdata_jk$Debt, 1) lag(pdata_jk$PopulationOld, 1) lag(pdata_jk$Immigration, 1)
1           -0.04878784                    0.003796695                  -0.07593531
```

```
2          -0.02486932                  -0.009119704                  -0.04510996
  lag(pdata_jk$Immigration_att, 1) lag(pdata_jk$Anti.immigration_ethnic_att, 1)
1                       0.07833166                                   0.07396096
2                       0.10790574                                   0.04406518
  lag(pdata_jk$Pronatalism, 1) lag(pdata_jk$Gov_left, 1) lag(pdata_jk$Gov_right, 1)
1                  0.001980129               -0.03015337                -0.09279247
2                 -0.041613414               -0.06173567                -0.11874954
```

	dropped
1	Hungary, Slovenia
2	Greece, Iceland, Spain

Middle-income 1st children – A

Coefficients:

```
                           Estimate Std. Error t-value Pr(>|t|)
lag(pdata$GDP, 1)          -0.021727   0.186272 -0.1166   0.9072
lag(pdata$Unemployment, 1) -0.046064   0.060961 -0.7556   0.4503
lag(pdata$Inflation, 1)    -0.020129   0.038153 -0.5276   0.5980
lag(pdata$Debt, 1)          0.082766   0.114528  0.7227   0.4702
lag(pdata$PopulationOld, 1) -0.048758   0.116965 -0.4169   0.6770

Total Sum of Squares:    117.02
Residual Sum of Squares: 116.38
R-Squared:      0.0054123
Adj. R-Squared: -0.059032
F-statistic: 0.221198 on 5 and 25 DF, p-value: 0.95
```

Middle-income 1st children – B

Coefficients:

```
                                       Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Immigration, 1)             -0.222403   0.090245 -2.4644  0.01408 *
lag(pdata$Immigration_att, 1)          0.083451   0.068774  1.2134  0.22559
lag(pdata$Anti.immigration_ethnic_att, 1)  0.022194   0.071819  0.3090  0.75743
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    117.02
Residual Sum of Squares: 114.93
R-Squared:      0.017852
Adj. R-Squared: -0.041288
F-statistic: 2.34764 on 3 and 25 DF, p-value: 0.096846
```

Middle-income 1st children – B – JK

Jackknife variances:

```
                    lag(pdata_jk$Immigration, 1)             lag(pdata_jk$Immigration_att, 1)
                                      0.0020071066                                       0.0006114094
lag(pdata_jk$Anti.immigration_ethnic_att, 1)
                                      0.0005109647
```

Sample of jackknife results:

```
  lag(pdata_jk$Immigration, 1) lag(pdata_jk$Immigration_att, 1)
1                   -0.1700958                        0.09118045
2                   -0.2596973                        0.14063383
  lag(pdata_jk$Anti.immigration_ethnic_att, 1)
1                                   0.06451191
2                                   0.01930286
```

Dropped
1 Hungary, Slovakia
2 Greece, Iceland, Spain

Middle-income 1st children – C

Coefficients:

```
                          Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Pronatalism, 1) -0.040052   0.031252 -1.2816   0.2006
lag(pdata$Gov_left, 1)    -0.044023   0.063374 -0.6947   0.4876
lag(pdata$Gov_right, 1)   -0.103147   0.078841 -1.3083   0.1914

Total Sum of Squares:    117.02
Residual Sum of Squares: 114.71
R-Squared:      0.01975
Adj. R-Squared: -0.039276
F-statistic: 0.834491 on 3 and 25 DF, p-value: 0.48762
```

Middle-income 2nd children

Coefficients:

```
                                        Estimate  Std. Error t-value Pr(>|t|)
lag(pdata$GDP, 1)                     0.30664589  0.24933990  1.2298 0.219393
lag(pdata$Unemployment, 1)            0.00855437  0.06715118  0.1274 0.898688
lag(pdata$Inflation, 1)              -0.04584411  0.02653806 -1.7275 0.084756 .
lag(pdata$Debt, 1)                    0.12404327  0.12462170  0.9954 0.320089
lag(pdata$PopulationOld, 1)          -0.06344312  0.11532472 -0.5501 0.582502
lag(pdata$Immigration, 1)            -0.18851559  0.07198411 -2.6189 0.009116 **
lag(pdata$Immigration_att, 1)         0.11097535  0.09260679  1.1984 0.231402
lag(pdata$Anti.immigration_ethnic_att, 1)  0.05205959  0.12019412  0.4331 0.665125
lag(pdata$Pronatalism, 1)             0.01565599  0.01752525  0.8933 0.372146
lag(pdata$Gov_left, 1)               -0.00088766  0.03805371 -0.0233 0.981400
lag(pdata$Gov_right, 1)               0.07841098  0.08945829  0.8765 0.381214
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

```
Total Sum of Squares:    191.06
Residual Sum of Squares: 182.93
R-Squared:      0.042544
Adj. R-Squared: -0.032879
F-statistic: 1.15837 on 11 and 25 DF, p-value: 0.36221
```

Middle-income 2nd children – JK

Jackknife variances:

```
                              lag(pdata_jk$GDP, 1)              lag(pdata_jk$Unemployment, 1)
                                        8.198071e-04                                2.271286e-04
                    lag(pdata_jk$Inflation, 1)                          lag(pdata_jk$Debt, 1)
                                        2.043221e-04                                1.510330e-03
                lag(pdata_jk$PopulationOld, 1)                 lag(pdata_jk$Immigration, 1)
                                        7.883224e-04                                1.037717e-04
            lag(pdata_jk$Immigration_att, 1) lag(pdata_jk$Anti.immigration_ethnic_att, 1)
                                        2.014444e-03                                6.401806e-04
               lag(pdata_jk$Pronatalism, 1)                    lag(pdata_jk$Gov_left, 1)
                                        9.200420e-06                                5.863743e-04
                 lag(pdata_jk$Gov_right, 1)
                                        1.035740e-03
```

Sample of jackknife results:

```
  lag(pdata_jk$GDP, 1) lag(pdata_jk$Unemployment, 1) lag(pdata_jk$Inflation, 1)
1            0.2242704                  -0.020527348                -0.03085264
2            0.2815350                   0.009614223                -0.05944090
  lag(pdata_jk$Debt, 1) lag(pdata_jk$PopulationOld, 1) lag(pdata_jk$Immigration, 1)
1            0.04131593                   -0.003001002                   -0.1897658
2            0.11904185                   -0.059155161                   -0.2101395
  lag(pdata_jk$Immigration_att, 1) lag(pdata_jk$Anti.immigration_ethnic_att, 1)
1                        0.0349479                                  0.004304439
2                        0.1247130                                  0.054908020
  lag(pdata_jk$Pronatalism, 1) lag(pdata_jk$Gov_left, 1) lag(pdata_jk$Gov_right, 1)
1                   0.02363979               0.02147141               -0.004034438
2                   0.01757335              -0.02695893                0.060331397
         dropped
1        Hungary
2 Iceland, Spain
```

Middle-income 2nd children – A

Coefficients:

```
                            Estimate Std. Error t-value Pr(>|t|)
lag(pdata$GDP, 1)            0.2654659  0.2796369  0.9493   0.3430
lag(pdata$Unemployment, 1)   0.0081951  0.0646874  0.1267   0.8992
lag(pdata$Inflation, 1)     -0.0497428  0.0216770 -2.2947   0.0222 *
lag(pdata$Debt, 1)           0.1042821  0.1120398  0.9308   0.3525
lag(pdata$PopulationOld, 1) -0.0463056  0.0980270 -0.4724   0.6369
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    191.06
Residual Sum of Squares: 187.32
R-Squared:      0.01958
```

```
Adj. R-Squared: -0.043946
F-statistic: 1.16627 on 5 and 25 DF, p-value: 0.3532
```

Middle-income 2nd children – A – JK

```
Jackknife variances:
            lag(pdata_jk$GDP, 1)  lag(pdata_jk$Unemployment, 1)     lag(pdata_jk$Inflation, 1)
                 7.448304e-04                   3.377380e-04                   6.463885e-05
        lag(pdata_jk$Debt, 1) lag(pdata_jk$PopulationOld, 1)
                 1.820457e-03                   1.212826e-04


Sample of jackknife results:
  lag(pdata_jk$GDP, 1) lag(pdata_jk$Unemployment, 1) lag(pdata_jk$Inflation, 1)
1            0.2156669                   -0.02433515                -0.03734806
2            0.2702501                    0.01242015                -0.05342772
  lag(pdata_jk$Debt, 1) lag(pdata_jk$PopulationOld, 1)
1            0.04429444                    -0.03669656
2            0.12962807                    -0.05872223

Dropped
1 Hungary
2 Iceland, Spain
```

Middle-income 2nd children – B

```
Coefficients:
                                        Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Immigration, 1)               -0.113056   0.081056 -1.3948   0.1637
lag(pdata$Immigration_att, 1)            0.157336   0.110621  1.4223   0.1556
lag(pdata$Anti.immigration_ethnic_att, 1)  0.059913   0.123249  0.4861   0.6271

Total Sum of Squares:    191.06
Residual Sum of Squares: 188.21
R-Squared:      0.014896
Adj. R-Squared: -0.044422
F-statistic: 1.65668 on 3 and 25 DF, p-value: 0.20176
```

Middle-income 2nd children - C

```
Coefficients:
                          Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Pronatalism, 1)  0.012283   0.017124  0.7173   0.4736
lag(pdata$Gov_left, 1)    -0.040289   0.043683 -0.9223   0.3568
lag(pdata$Gov_right, 1)    0.036599   0.073967  0.4948   0.6210

Total Sum of Squares:    191.06
Residual Sum of Squares: 188.97
R-Squared:      0.01094
Adj. R-Squared: -0.048616
F-statistic: 0.747368 on 3 and 25 DF, p-value: 0.53409
```

Middle-income 3rd children

```
Coefficients:
```

```
                                          Estimate Std. Error t-value Pr(>|t|)
lag(pdata$GDP, 1)                          0.3519386  0.3862630  0.9111  0.36270
lag(pdata$Unemployment, 1)                -0.0951301  0.0692516 -1.3737  0.17021
lag(pdata$Inflation, 1)                   -0.0867311  0.0528167 -1.6421  0.10125
lag(pdata$Debt, 1)                         0.0358711  0.0939376  0.3819  0.70274
lag(pdata$PopulationOld, 1)                0.1719866  0.1651318  1.0415  0.29819
lag(pdata$Immigration, 1)                 -0.3703117  0.1692090 -2.1885  0.02914 *
lag(pdata$Immigration_att, 1)             -0.0781093  0.1074121 -0.7272  0.46748
lag(pdata$Anti.immigration_ethnic_att, 1) -0.0232082  0.1308792 -0.1773  0.85933
lag(pdata$Pronatalism, 1)                  0.0273750  0.0214523  1.2761  0.20257
lag(pdata$Gov_left, 1)                     0.0228197  0.0603090  0.3784  0.70532
lag(pdata$Gov_right, 1)                   -0.0076224  0.0711411 -0.1071  0.91472
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Total Sum of Squares:    198.79
Residual Sum of Squares: 179.49
R-Squared:      0.09709
Adj. R-Squared: 0.025963
F-statistic: 1.07448 on 11 and 25 DF, p-value: 0.41846
```

Middle-income 3rd children – JK

Jackknife variances:

```
                        lag(pdata_jk$GDP, 1)                lag(pdata_jk$Unemployment, 1)
                                4.167745e-04                                2.005983e-04
                   lag(pdata_jk$Inflation, 1)                        lag(pdata_jk$Debt, 1)
                                1.384250e-04                                1.862098e-05
               lag(pdata_jk$PopulationOld, 1)                lag(pdata_jk$Immigration, 1)
                                5.262168e-06                                5.840806e-05
            lag(pdata_jk$Immigration_att, 1) lag(pdata_jk$Anti.immigration_ethnic_att, 1)
                                1.548532e-03                                1.931478e-03
                lag(pdata_jk$Pronatalism, 1)                    lag(pdata_jk$Gov_left, 1)
                                1.255277e-05                                2.067105e-05
                  lag(pdata_jk$Gov_right, 1)
                                1.037475e-05
```

Sample of jackknife results:

```
  lag(pdata_jk$GDP, 1) lag(pdata_jk$Unemployment, 1) lag(pdata_jk$Inflation, 1)
1            0.2300017                   -0.04211101                -0.07986462
2            0.2708319                   -0.07043755                -0.10339545
  lag(pdata_jk$Debt, 1) lag(pdata_jk$PopulationOld, 1) lag(pdata_jk$Immigration, 1)
1          -0.001093611                      0.1261190                   -0.3836687
2           0.007536795                      0.1307069                   -0.3289537
  lag(pdata_jk$Immigration_att, 1) lag(pdata_jk$Anti.immigration_ethnic_att, 1)
1                       0.01510692                                  0.089125778
2                      -0.06359585                                  0.001228606
  lag(pdata_jk$Pronatalism, 1) lag(pdata_jk$Gov_left, 1) lag(pdata_jk$Gov_right, 1)
1                   0.02789349              0.005867106                -0.012857743
2                   0.03497947              0.014960192                -0.006415772
                                dropped
1                               Hungary
2 Iceland, Netherlands, United Kingdom
```

Middle-income 3rd children – A

Coefficients:

```
                           Estimate Std. Error t-value Pr(>|t|)
lag(pdata$GDP, 1)           0.323304   0.440888  0.7333  0.46375
lag(pdata$Unemployment, 1) -0.105812   0.068712 -1.5399  0.12426
lag(pdata$Inflation, 1)    -0.085914   0.048797 -1.7606  0.07896 .
lag(pdata$Debt, 1)          0.036916   0.099319  0.3717  0.71029
lag(pdata$PopulationOld, 1) 0.063346   0.140599  0.4505  0.65253
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    198.79
Residual Sum of Squares: 185.12
R-Squared:      0.068756
Adj. R-Squared: 0.0084159
F-statistic: 1.23201 on 5 and 25 DF, p-value: 0.32377
```

Middle-income 3rd children – A – JK

Jackknife variances:

```
                           lag(pdata_jk$GDP, 1)              lag(pdata_jk$Unemployment, 1)
                                   1.045474e-04                                4.114824e-04
                 lag(pdata_jk$Inflation, 1)                        lag(pdata_jk$Debt, 1)
                                   7.089208e-05                                4.183893e-05
            lag(pdata_jk$PopulationOld, 1)                lag(pdata_jk$Immigration, 1)
                                   1.292363e-04                                7.421729e-04
          lag(pdata_jk$Immigration_att, 1) lag(pdata_jk$Anti.immigration_ethnic_att, 1)
                                   1.680500e-03                                2.519444e-03
             lag(pdata_jk$Pronatalism, 1)                  lag(pdata_jk$Gov_left, 1)
                                   1.458723e-05                                6.886232e-05
              lag(pdata_jk$Gov_right, 1)
                                   2.696829e-05
```

Sample of jackknife results:

```
  lag(pdata_jk$GDP, 1) lag(pdata_jk$Unemployment, 1) lag(pdata_jk$Inflation, 1)
1            0.3531209                   -0.06496431                -0.07851650
2            0.3735706                   -0.10553437                -0.09535598
  lag(pdata_jk$Debt, 1) lag(pdata_jk$PopulationOld, 1) lag(pdata_jk$Immigration, 1)
1            0.03846085                      0.1445659                   -0.3386025
2            0.05139746                      0.1673024                   -0.3930882
  lag(pdata_jk$Immigration_att, 1) lag(pdata_jk$Anti.immigration_ethnic_att, 1)
1                       0.01242212                                  0.07033347
2                      -0.06956567                                 -0.03005465
  lag(pdata_jk$Pronatalism, 1) lag(pdata_jk$Gov_left, 1) lag(pdata_jk$Gov_right, 1)
1                   0.02192183               0.02380352               -0.0007641235
2                   0.02956047               0.04040018                0.0096220775
                                dropped
1                               Hungary
2 Iceland, Netherlands, United Kingdom
```

Middle-income 3rd children – B

Coefficients:

	Estimate	Std. Error	t-value	Pr(>|t|)
lag(pdata$Immigration, 1)	-0.145076	0.119921	-1.2098	0.2270
lag(pdata$Immigration_att, 1)	0.018448	0.111473	0.1655	0.8686
lag(pdata$Anti.immigration_ethnic_att, 1)	-0.023571	0.161436	-0.1460	0.8840

Total Sum of Squares: 198.79
Residual Sum of Squares: 198.07
R-Squared: 0.0036045
Adj. R-Squared: -0.056393
F-statistic: 0.682386 on 3 and 25 DF, p-value: 0.57114

Middle-income 3rd children – C

Coefficients:

	Estimate	Std. Error	t-value	Pr(>|t|)
lag(pdata$Pronatalism, 1)	0.0177822	0.0203576	0.8735	0.3828
lag(pdata$Gov_left, 1)	-0.0063921	0.0606700	-0.1054	0.9161
lag(pdata$Gov_right, 1)	-0.0307447	0.0751607	-0.4091	0.6827

Total Sum of Squares: 198.79
Residual Sum of Squares: 198.45
R-Squared: 0.0017304
Adj. R-Squared: -0.05838
F-statistic: 0.922286 on 3 and 25 DF, p-value: 0.44443

Middle-income 4th children

Coefficients:

	Estimate	Std. Error	t-value	Pr(>|t|)	
lag(pdata$GDP, 1)	0.272778	0.277055	0.9846	0.32536	
lag(pdata$Unemployment, 1)	-0.096016	0.069872	-1.3742	0.17006	
lag(pdata$Inflation, 1)	-0.036756	0.035501	-1.0354	0.30105	
lag(pdata$Debt, 1)	0.052138	0.074709	0.6979	0.48560	
lag(pdata$PopulationOld, 1)	0.054633	0.113660	0.4807	0.63098	
lag(pdata$Immigration, 1)	-0.249431	0.111955	-2.2280	0.02637	*
lag(pdata$Immigration_att, 1)	0.080766	0.080850	0.9990	0.31834	
lag(pdata$Anti.immigration_ethnic_att, 1)	0.157141	0.115807	1.3569	0.17548	
lag(pdata$Pronatalism, 1)	0.029165	0.018863	1.5461	0.12276	
lag(pdata$Gov_left, 1)	0.046186	0.038789	1.1907	0.23439	
lag(pdata$Gov_right, 1)	0.123266	0.066194	1.8622	0.06322	.

Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares: 172.68

```
Residual Sum of Squares: 158.56
R-Squared:      0.081804
Adj. R-Squared: 0.009473
F-statistic: 1.00373 on 11 and 25 DF, p-value: 0.47048
```

Middle-income 4th children – JK

Jackknife variances:

```
                        lag(pdata_jk$GDP, 1)                lag(pdata_jk$Unemployment, 1)
                                3.067174e-06                                3.985744e-04
                  lag(pdata_jk$Inflation, 1)                        lag(pdata_jk$Debt, 1)
                                4.280735e-05                                4.227961e-04
               lag(pdata_jk$PopulationOld, 1)                 lag(pdata_jk$Immigration, 1)
                                1.860842e-07                                7.505078e-06
            lag(pdata_jk$Immigration_att, 1) lag(pdata_jk$Anti.immigration_ethnic_att, 1)
                                1.521866e-04                                1.404415e-04
                lag(pdata_jk$Pronatalism, 1)                    lag(pdata_jk$Gov_left, 1)
                                5.241650e-06                                3.022311e-05
                  lag(pdata_jk$Gov_right, 1)
                                3.005852e-04
```

Sample of jackknife results:

```
  lag(pdata_jk$GDP, 1) lag(pdata_jk$Unemployment, 1) lag(pdata_jk$Inflation, 1)
1            0.2931613                   -0.09975129                -0.03937662
2            0.2896586                   -0.05982263                -0.02629115
  lag(pdata_jk$Debt, 1) lag(pdata_jk$PopulationOld, 1) lag(pdata_jk$Immigration, 1)
1            0.05672658                     0.04451422                   -0.2517168
2            0.01560257                     0.04537697                   -0.2571959
  lag(pdata_jk$Immigration_att, 1) lag(pdata_jk$Anti.immigration_ethnic_att, 1)
1                       0.07570705                                    0.1584319
2                       0.10037984                                    0.1821335
  lag(pdata_jk$Pronatalism, 1) lag(pdata_jk$Gov_left, 1) lag(pdata_jk$Gov_right, 1)
1                   0.03452642                0.05531075                   0.1472690
2                   0.02994749                0.06630585                   0.1125942


                                dropped
1                                 Italy
2 Hungary, Netherlands, United Kingdom
```

Middle-income 4th children – A

Coefficients:

```
                           Estimate Std. Error t-value Pr(>|t|)
lag(pdata$GDP, 1)           0.206827   0.344693  0.6000   0.5488
lag(pdata$Unemployment, 1) -0.101189   0.071900 -1.4074   0.1600
lag(pdata$Inflation, 1)    -0.033227   0.034031 -0.9764   0.3294
lag(pdata$Debt, 1)          0.015831   0.072933  0.2171   0.8283
lag(pdata$PopulationOld, 1) 0.026889   0.126821  0.2120   0.8322

Total Sum of Squares:    172.68
Residual Sum of Squares: 166.79
R-Squared:      0.034105
Adj. R-Squared: -0.02848
```

```
F-statistic: 0.702268 on 5 and 25 DF, p-value: 0.62698
```

Middle-income 4th children – B

Coefficients:

```
                                      Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Immigration, 1)                -0.096112   0.069048 -1.3920   0.1646
lag(pdata$Immigration_att, 1)             0.132164   0.123490  1.0702   0.2851
lag(pdata$Anti.immigration_ethnic_att, 1) 0.170520   0.141955  1.2012   0.2303

Total Sum of Squares:    172.68
Residual Sum of Squares: 168.79
R-Squared:      0.022521
Adj. R-Squared: -0.036338
F-statistic: 1.54617 on 3 and 25 DF, p-value: 0.22725
```

Middle-income 4th children – C

Coefficients:

```
                        Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Pronatalism, 1) 0.018509   0.016830  1.0998   0.2720
lag(pdata$Gov_left, 1)    0.018504   0.045760  0.4044   0.6861
lag(pdata$Gov_right, 1)   0.103944   0.064143  1.6205   0.1058

Total Sum of Squares:    172.68
Residual Sum of Squares: 169.82
R-Squared:      0.01657
Adj. R-Squared: -0.042647
F-statistic: 0.906839 on 3 and 25 DF, p-value: 0.45177
```

Low-income – aggregate

Coefficients:

```
                                     Estimate Std. Error t-value Pr(>|t|)
lag(pdata$GDP, 1)                  -0.1314343  0.2718052 -0.4836   0.6291
lag(pdata$Unemployment, 1)          0.0342343  0.0604284  0.5665   0.5715
lag(pdata$Inflation, 1)            -0.0768698  0.0760015 -1.0114   0.3126
lag(pdata$Debt, 1)                 -0.0881240  0.1423324 -0.6191   0.5363
lag(pdata$PopulationOld, 1)         0.2337246  0.2195924  1.0644   0.2880
lag(pdata$Immigration, 1)          -0.2579470  0.1547501 -1.6669   0.0966 .
lag(pdata$Immigration_att, 1)       0.0480462  0.0991187  0.4847   0.6282
lag(pdata$Anti.immigration_ethnic_att, 1) 0.1713170  0.1297059  1.3208 0.1976
lag(pdata$Pronatalism, 1)           0.0119257  0.0232357  0.5132   0.6082
lag(pdata$Gov_left, 1)             -0.0043067  0.0602670 -0.0715   0.9431
lag(pdata$Gov_right, 1)            -0.0525460  0.0629245 -0.8351   0.4044
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    87.648
```

```
Residual Sum of Squares: 78.893
R-Squared:      0.09989
Adj. R-Squared: 0.017507
F-statistic: 2.5197 on 11 and 16 DF, p-value: 0.045494
```

Low-income – aggregate – JK

```
Jackknife variances:
                              lag(pdata_jk$GDP, 1)              lag(pdata_jk$Unemployment, 1)
                                        5.903028e-06                                2.135375e-05
                    lag(pdata_jk$Inflation, 1)                        lag(pdata_jk$Debt, 1)
                                        1.509687e-04                                2.012370e-03
                 lag(pdata_jk$PopulationOld, 1)                lag(pdata_jk$Immigration, 1)
                                        4.736309e-03                                1.049255e-02
               lag(pdata_jk$Immigration_att, 1) lag(pdata_jk$Anti.immigration_ethnic_att, 1)
                                        9.349719e-05                                2.504685e-03
                   lag(pdata_jk$Pronatalism, 1)                    lag(pdata_jk$Gov_left, 1)
                                        2.174722e-05                                1.307935e-04
                     lag(pdata_jk$Gov_right, 1)
                                        1.084503e-04

Sample of jackknife results:
  lag(pdata_jk$GDP, 1) lag(pdata_jk$Unemployment, 1) lag(pdata_jk$Inflation, 1)
1           -0.1544647                     0.04675680                -0.05520585
2           -0.1496054                     0.03751478                -0.07977971
  lag(pdata_jk$Debt, 1) lag(pdata_jk$PopulationOld, 1) lag(pdata_jk$Immigration, 1)
1           -0.01956252                       0.1083729                   -0.4780339
2           -0.10928141                       0.2460146                   -0.2731676
  lag(pdata_jk$Immigration_att, 1) lag(pdata_jk$Anti.immigration_ethnic_att, 1)
1                       0.05691786                                    0.0696401
2                       0.03757907                                    0.1697338
  lag(pdata_jk$Pronatalism, 1) lag(pdata_jk$Gov_left, 1) lag(pdata_jk$Gov_right, 1)
1                  0.001520123               0.015344485                -0.03425754
2                  0.010846906              -0.007528514                -0.05508544


dropped
1 Luxembourg, Poland, Slovakia
2                        Spain
```

Low-income – aggregate – A

```
Coefficients:
                           Estimate Std. Error t-value Pr(>|t|)
lag(pdata$GDP, 1)          -0.273094   0.255529 -1.0687   0.2860
lag(pdata$Unemployment, 1)  0.027221   0.065269  0.4171   0.6769
lag(pdata$Inflation, 1)    -0.083258   0.066198 -1.2577   0.2095
lag(pdata$Debt, 1)         -0.176191   0.153207 -1.1500   0.2510
lag(pdata$PopulationOld, 1)  0.249702   0.207412  1.2039   0.2296

Total Sum of Squares:    87.648
Residual Sum of Squares: 83.151
R-Squared:      0.05131
```

```
Adj. R-Squared: -0.014878
F-statistic: 1.95928 on 5 and 16 DF, p-value: 0.14013
```

Low-income – aggregate – B

```
Coefficients:
                                          Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Immigration, 1)                -0.215092   0.156183 -1.3772   0.1695
lag(pdata$Immigration_att, 1)             0.145354   0.099621  1.4591   0.1456
lag(pdata$Anti.immigration_ethnic_att, 1) 0.169653   0.137982  1.2295   0.2198

Total Sum of Squares:    87.648
Residual Sum of Squares: 84.128
R-Squared:      0.040154
Adj. R-Squared: -0.020034
F-statistic: 2.68314 on 3 and 16 DF, p-value: 0.081664
```

Low-income – aggregate – C

```
Coefficients:
                          Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Pronatalism, 1) -0.0030787  0.0166459 -0.1850   0.8534
lag(pdata$Gov_left, 1)     0.0156816  0.0582523  0.2692   0.7880
lag(pdata$Gov_right, 1)   -0.0067556  0.0649119 -0.1041   0.9172

Total Sum of Squares:    87.648
Residual Sum of Squares: 87.531
R-Squared:      0.0013375
Adj. R-Squared: -0.061285
F-statistic: 0.0439077 on 3 and 16 DF, p-value: 0.98731
```

Low-income – 1st children

```
Coefficients:
                                          Estimate Std. Error t-value Pr(>|t|)
lag(pdata$GDP, 1)                        -0.523191   0.441380 -1.1854   0.2368
lag(pdata$Unemployment, 1)               -0.011076   0.108267 -0.1023   0.9186
lag(pdata$Inflation, 1)                  -0.054787   0.051400 -1.0659   0.2873
lag(pdata$Debt, 1)                       -0.048142   0.260874 -0.1845   0.8537
lag(pdata$PopulationOld, 1)               0.342091   0.378578  0.9036   0.3669
lag(pdata$Immigration, 1)                -0.062858   0.158086 -0.3976   0.6912
lag(pdata$Immigration_att, 1)             0.109692   0.157395  0.6969   0.4864
lag(pdata$Anti.immigration_ethnic_att, 1) 0.225579   0.220642  1.0224   0.3074
lag(pdata$Pronatalism, 1)                 0.043292   0.040507  1.0687   0.2861
lag(pdata$Gov_left, 1)                   -0.053016   0.099539 -0.5326   0.5947
lag(pdata$Gov_right, 1)                  -0.040536   0.104880 -0.3865   0.6994

Total Sum of Squares:    165.68
Residual Sum of Squares: 152.52
```

```
R-Squared:      0.079442
Adj. R-Squared: -0.0048123
F-statistic: 0.999045 on 11 and 16 DF, p-value: 0.4869
```

Low-income – 1st children – A

Coefficients:

```
                            Estimate Std. Error t-value Pr(>|t|)
lag(pdata$GDP, 1)           -0.673564   0.367449 -1.8331  0.06778 .
lag(pdata$Unemployment, 1)  -0.021058   0.108623 -0.1939  0.84641
lag(pdata$Inflation, 1)     -0.054304   0.043670 -1.2435  0.21466
lag(pdata$Debt, 1)          -0.088921   0.276344 -0.3218  0.74785
lag(pdata$PopulationOld, 1)  0.382705   0.360061  1.0629  0.28868
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    165.68
Residual Sum of Squares: 157.05
R-Squared:      0.052094
Adj. R-Squared: -0.014039
F-statistic: 2.04797 on 5 and 16 DF, p-value: 0.12604
```

Low-income – 1st children - B

Coefficients:

```
                                        Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Immigration, 1)              -0.0038986  0.1566895 -0.0249   0.9802
lag(pdata$Immigration_att, 1)           0.2475913  0.1853622  1.3357   0.1826
lag(pdata$Anti.immigration_ethnic_att,  1)  0.2643308  0.2366632  1.1169   0.2649

Total Sum of Squares:    165.68
Residual Sum of Squares: 159.37
R-Squared:      0.0381
Adj. R-Squared: -0.022217
F-statistic: 0.739816 on 3 and 16 DF, p-value: 0.54366
```

Low-income – 1st children – C

Coefficients:

```
                          Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Pronatalism, 1)  0.027371   0.028823  0.9496   0.3431
lag(pdata$Gov_left, 1)    -0.014211   0.073592 -0.1931   0.8470
lag(pdata$Gov_right, 1)    0.042461   0.081582  0.5205   0.6031

Total Sum of Squares:    165.68
Residual Sum of Squares: 164.77
R-Squared:      0.0054938
Adj. R-Squared: -0.056868
F-statistic: 0.321357 on 3 and 16 DF, p-value: 0.80984
```

Low-income – 2nd children

Coefficients:

```
                                          Estimate Std. Error t-value Pr(>|t|)
lag(pdata$GDP, 1)                        -0.3647737  0.3330782 -1.0952   0.2743
lag(pdata$Unemployment, 1)                0.0542859  0.0724547  0.7492   0.4543
lag(pdata$Inflation, 1)                  -0.0409601  0.0786638 -0.5207   0.6030
lag(pdata$Debt, 1)                       -0.0019986  0.1632801 -0.0122   0.9902
lag(pdata$PopulationOld, 1)               0.2146473  0.2386309  0.8995   0.3691
lag(pdata$Immigration, 1)                -0.1358867  0.1459494 -0.9311   0.3526
lag(pdata$Immigration_att, 1)            -0.0619119  0.1151538 -0.5376   0.5912
lag(pdata$Anti.immigration_ethnic_att, 1)  0.1269783  0.1146870  1.1072   0.2691
lag(pdata$Pronatalism, 1)                -0.0217918  0.0247644 -0.8800   0.3796
lag(pdata$Gov_left, 1)                    0.0073053  0.0783217  0.0933   0.9258
lag(pdata$Gov_right, 1)                  -0.0231503  0.0915400 -0.2529   0.8005

Total Sum of Squares:    114.6
Residual Sum of Squares: 107.36
R-Squared:      0.063238
Adj. R-Squared: -0.0225
F-statistic: 8.41982 on 11 and 16 DF, p-value: 9.5768e-05
```

Low-income – 2nd children – A

Coefficients:

```
                           Estimate Std. Error t-value Pr(>|t|)
lag(pdata$GDP, 1)          -0.471751   0.231158 -2.0408  0.04214 *
lag(pdata$Unemployment, 1)  0.046679   0.078209  0.5969  0.55106
lag(pdata$Inflation, 1)    -0.044156   0.074729 -0.5909  0.55504
lag(pdata$Debt, 1)         -0.094586   0.158148 -0.5981  0.55023
lag(pdata$PopulationOld, 1) 0.202243   0.199558  1.0135  0.31166
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    114.6
Residual Sum of Squares: 111.11
R-Squared:      0.030454
Adj. R-Squared: -0.037189
F-statistic: 4.32976 on 5 and 16 DF, p-value: 0.011061
```

Low-income – 2nd children – A – JK

Jackknife variances:

```
         lag(pdata_jk$GDP, 1)  lag(pdata_jk$Unemployment, 1)     lag(pdata_jk$Inflation, 1)
                6.514727e-03                   4.440334e-04                   2.961836e-06
        lag(pdata_jk$Debt, 1) lag(pdata_jk$PopulationOld, 1)
                9.763304e-03                   2.832590e-02
```

Sample of jackknife results:

```
  lag(pdata_jk$GDP, 1) lag(pdata_jk$Unemployment, 1) lag(pdata_jk$Inflation, 1)
1           -0.2856103                    0.09397466                -0.01231708
2           -0.4470380                    0.13611885                -0.01575907
  lag(pdata_jk$Debt, 1) lag(pdata_jk$PopulationOld, 1)
1            0.02268979                    -0.02333045
2           -0.17492907                     0.31327553
```

Dropped
1 Hungary, Luxembourg, Poland, Slovakia
2 Greece, Lithuania, Netherlands, Portugal

Low-income – 2nd children – B – JK

Coefficients:

```
                                      Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Immigration, 1)            -0.081715   0.126478 -0.6461   0.5187
lag(pdata$Immigration_att, 1)         0.045917   0.103853  0.4421   0.6587
lag(pdata$Anti.immigration_ethnic_att,  1)  0.146627   0.115944  1.2646   0.2070

Total Sum of Squares:    114.6
Residual Sum of Squares: 112.32
R-Squared:      0.019898
Adj. R-Squared: -0.04156
F-statistic: 1.5736 on 3 and 16 DF, p-value: 0.23472
```

Low-income – 2nd children – C

Coefficients:

```
                          Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Pronatalism, 1) -0.032884   0.022578 -1.4565   0.1463
lag(pdata$Gov_left, 1)     0.036042   0.073498  0.4904   0.6242
lag(pdata$Gov_right, 1)    0.034327   0.075324  0.4557   0.6489

Total Sum of Squares:    114.6
Residual Sum of Squares: 114.19
R-Squared:      0.0035833
Adj. R-Squared: -0.058898
F-statistic: 0.794507 on 3 and 16 DF, p-value: 0.51468
```

Low-income – 3rd children

```
lag(pdata$GDP, 1)                        -0.1811535   0.3934375 -0.4604  0.64554
lag(pdata$Unemployment, 1)                0.0778464   0.1042794  0.7465  0.45595
lag(pdata$Inflation, 1)                  -0.1424855   0.0878841 -1.6213  0.10602
lag(pdata$Debt, 1)                       -0.2901221   0.1834433 -1.5815  0.11483
lag(pdata$PopulationOld, 1)               0.3157094   0.2547078  1.2395  0.21615
lag(pdata$Immigration, 1)                -0.3807304   0.2575918 -1.4780  0.14046
lag(pdata$Immigration_att, 1)             0.0316840   0.1428679  0.2218  0.82465
lag(pdata$Anti.immigration_ethnic_att, 1)  0.0624418   0.1578537  0.3956  0.69271
lag(pdata$Pronatalism, 1)                 0.0028265   0.0245572  0.1151  0.90844
lag(pdata$Gov_left, 1)                   -0.1310861   0.0838496 -1.5633  0.11904
lag(pdata$Gov_right, 1)                  -0.1742422   0.1034690 -1.6840  0.09324 .
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

```
Total Sum of Squares:    137.67
Residual Sum of Squares: 122.66
R-Squared:      0.109
Adj. R-Squared: 0.027453
F-statistic: 8.44364 on 11 and 16 DF, p-value: 9.4092e-05
```

Low-income – 3rd children – JK

Jackknife variances:

```
                         lag(pdata_jk$GDP, 1)                lag(pdata_jk$Unemployment, 1)
                                   6.254852e-02                                 4.207952e-06
                  lag(pdata_jk$Inflation, 1)                         lag(pdata_jk$Debt, 1)
                                   4.205541e-07                                 1.464489e-03
               lag(pdata_jk$PopulationOld, 1)                 lag(pdata_jk$Immigration, 1)
                                   1.777948e-02                                 2.332908e-02
            lag(pdata_jk$Immigration_att, 1) lag(pdata_jk$Anti.immigration_ethnic_att, 1)
                                   4.052180e-02                                 8.459337e-03
                lag(pdata_jk$Pronatalism, 1)                    lag(pdata_jk$Gov_left, 1)
                                   7.403494e-05                                 1.954698e-03
                  lag(pdata_jk$Gov_right, 1)
                                   4.280877e-04
```

Sample of jackknife results:

```
  lag(pdata_jk$GDP, 1) lag(pdata_jk$Unemployment, 1) lag(pdata_jk$Inflation, 1)
1            -0.180564                    0.01073432                 -0.1473625
2             0.319630                    0.01483697                 -0.1460655
  lag(pdata_jk$Debt, 1) lag(pdata_jk$PopulationOld, 1) lag(pdata_jk$Immigration, 1)
1            -0.1490598                   -0.03978288                  -0.07067939
2            -0.2255971                    0.22689659                  -0.37615659
  lag(pdata_jk$Immigration_att, 1) lag(pdata_jk$Anti.immigration_ethnic_att, 1)
1                        0.2358405                                    0.2733263
2                       -0.1667600                                    0.0893770
  lag(pdata_jk$Pronatalism, 1) lag(pdata_jk$Gov_left, 1)  lag(pdata_jk$Gov_right, 1)
1                -0.014895998                -0.0690972                 -0.1679974
2                 0.002312714                -0.1575211                 -0.1266169
```

Dropped
1 Estonia, Hungary, Latvia, Poland, Slovakia
2 Greece, Lithuania, Netherlands, Slovenia

Low-income – 3rd children – A

Coefficients:

```
                           Estimate  Std. Error t-value Pr(>|t|)
lag(pdata$GDP, 1)          -0.130148   0.363629 -0.3579   0.7207
lag(pdata$Unemployment, 1)  0.069317   0.108731  0.6375   0.5243
lag(pdata$Inflation, 1)    -0.138092   0.080578 -1.7138   0.0876 .
lag(pdata$Debt, 1)         -0.283101   0.172626 -1.6400   0.1021
lag(pdata$PopulationOld, 1) 0.252943   0.220454  1.1474   0.2521
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    137.67
```

```
Residual Sum of Squares: 129.12
R-Squared:      0.062053
Adj. R-Squared: -0.003385
F-statistic: 2.20333 on 5 and 16 DF, p-value: 0.10486
```

Low-income – 3rd children – A – JK

Jackknife variances:

```
          lag(pdata_jk$GDP, 1)  lag(pdata_jk$Unemployment, 1)     lag(pdata_jk$Inflation, 1)
                   0.0442635786                   0.0001838795                   0.0002724458
         lag(pdata_jk$Debt, 1) lag(pdata_jk$PopulationOld, 1)
                   0.0125419546                   0.0154829776
```

Sample of jackknife results:

```
  lag(pdata_jk$GDP, 1) lag(pdata_jk$Unemployment, 1) lag(pdata_jk$Inflation, 1)
1           -0.2607270                    0.01413917                 -0.1550589
2            0.1600512                    0.04125960                 -0.1220470
  lag(pdata_jk$Debt, 1) lag(pdata_jk$PopulationOld, 1)
1            -0.1420789                    -0.02046339
2            -0.3660606                     0.22839784
```

Dropped

1 Estonia, Hungary, Latvia, Poland, Slovakia

2 Greece, Lithuania, Netherlands, Slovenia

Low-income – 3rd children – B

Coefficients:

```
                                        Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Immigration, 1)               -0.437504   0.269720 -1.6221   0.1058
lag(pdata$Immigration_att, 1)            0.132186   0.146028  0.9052   0.3661
lag(pdata$Anti.immigration_ethnic_att, 1)  0.043203   0.155850  0.2772   0.7818

Total Sum of Squares:    137.67
Residual Sum of Squares: 133.36
R-Squared:      0.031259
Adj. R-Squared: -0.029487
F-statistic: 1.67294 on 3 and 16 DF, p-value: 0.21272
```

Low-income – 3rd children – C

Coefficients:

```
                           Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Pronatalism, 1) -0.0078864  0.0185486 -0.4252   0.6710
lag(pdata$Gov_left, 1)    -0.0989590  0.0842755 -1.1742   0.2412
lag(pdata$Gov_right, 1)   -0.1358378  0.1063839 -1.2769   0.2026

Total Sum of Squares:    137.67
Residual Sum of Squares: 135.88
R-Squared:      0.012955
Adj. R-Squared: -0.048939
F-statistic: 0.650646 on 3 and 16 DF, p-value: 0.59399
```

Low-income – 4th children

Coefficients:

	Estimate	Std. Error	t-value	Pr(>|t|)
lag(pdata$GDP, 1)	0.2676132	0.2963487	0.9030	0.3672
lag(pdata$Unemployment, 1)	-0.1396377	0.0877872	-1.5906	0.1128
lag(pdata$Inflation, 1)	-0.0514196	0.0483962	-1.0625	0.2889
lag(pdata$Debt, 1)	-0.0524290	0.1619914	-0.3237	0.7464
lag(pdata$PopulationOld, 1)	0.1074889	0.1720549	0.6247	0.5326
lag(pdata$Immigration, 1)	-0.3277025	0.2155537	-1.5203	0.1295
lag(pdata$Immigration_att, 1)	-0.0614373	0.0986165	-0.6230	0.5338
lag(pdata$Anti.immigration_ethnic_att, 1)	0.0537373	0.0860079	0.6248	0.5326
lag(pdata$Pronatalism, 1)	-0.0052681	0.0189169	-0.2785	0.7808
lag(pdata$Gov_left, 1)	0.0521349	0.0731278	0.7129	0.4765
lag(pdata$Gov_right, 1)	0.0200719	0.0704411	0.2849	0.7759

Total Sum of Squares: 100.09
Residual Sum of Squares: 88.256
R-Squared: 0.1182
Adj. R-Squared: 0.037492
F-statistic: 8.81152 on 11 and 16 DF, p-value: 7.1975e-05

Low-income – 4th children – A

Coefficients:

	Estimate	Std. Error	t-value	Pr(>|t|)
lag(pdata$GDP, 1)	0.139260	0.287272	0.4848	0.6282
lag(pdata$Unemployment, 1)	-0.140395	0.092902	-1.5112	0.1318
lag(pdata$Inflation, 1)	-0.059436	0.042085	-1.4123	0.1589
lag(pdata$Debt, 1)	-0.174739	0.122682	-1.4243	0.1554
lag(pdata$PopulationOld, 1)	0.114362	0.130135	0.8788	0.3802

Total Sum of Squares: 100.09
Residual Sum of Squares: 91.579
R-Squared: 0.085002
Adj. R-Squared: 0.021164
F-statistic: 0.753553 on 5 and 16 DF, p-value: 0.59568

Low-income – 4th children – B

Coefficients:

	Estimate	Std. Error	t-value	Pr(>|t|)
lag(pdata$Immigration, 1)	-0.300661	0.189273	-1.5885	0.1132
lag(pdata$Immigration_att, 1)	-0.040612	0.084105	-0.4829	0.6295
lag(pdata$Anti.immigration_ethnic_att, 1)	0.055482	0.059403	0.9340	0.3511

Total Sum of Squares: 100.09
Residual Sum of Squares: 96.715
R-Squared: 0.033684
Adj. R-Squared: -0.02691
F-statistic: 2.07345 on 3 and 16 DF, p-value: 0.1441

Low-income – 4th children – C

Coefficients:

```
                          Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Pronatalism, 1) -0.019422   0.019114 -1.0161   0.3104
lag(pdata$Gov_left, 1)     0.050959   0.059212  0.8606   0.3901
lag(pdata$Gov_right, 1)    0.021520   0.059114  0.3640   0.7161

Total Sum of Squares:    100.09
Residual Sum of Squares: 99.633
R-Squared:      0.0045348
Adj. R-Squared: -0.057887
F-statistic: 0.819049 on 3 and 16 DF, p-value: 0.50214
```

Middle-income + low-income – aggregate

Coefficients:

```
                                          Estimate  Std. Error t-value Pr(>|t|)
lag(pdata$GDP, 1)                         0.16578589  0.37748613  0.4392 0.660850
lag(pdata$Unemployment, 1)               -0.00133940  0.05532338 -0.0242 0.980701
lag(pdata$Inflation, 1)                  -0.11139799  0.06164612 -1.8071 0.071772 .
lag(pdata$Debt, 1)                       -0.09778051  0.14014739 -0.6977 0.485916
lag(pdata$PopulationOld, 1)               0.26742456  0.24750599  1.0805 0.280812
lag(pdata$Immigration, 1)                -0.29776703  0.10527642 -2.8284 0.004998 **
lag(pdata$Immigration_att, 1)             0.06248502  0.08995399  0.6946 0.487832
lag(pdata$Anti.immigration_ethnic_att, 1) 0.15071847  0.14333993  1.0515 0.293901
lag(pdata$Pronatalism, 1)                 0.02093884  0.02062256  1.0153 0.310777
lag(pdata$Gov_left, 1)                    0.01179472  0.06100668  0.1933 0.846830
lag(pdata$Gov_right, 1)                   0.00040054  0.05946472  0.0067 0.994630
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    96.655
Residual Sum of Squares: 81.804
R-Squared:      0.15365
Adj. R-Squared: 0.076184
F-statistic: 3.13249 on 11 and 16 DF, p-value: 0.018973
```

Middle-income + low-income – aggregate – JK

Jackknife variances:

```
                        lag(pdata_jk$GDP, 1)                lag(pdata_jk$Unemployment, 1)
                                1.088527e-03                                2.026470e-05
                 lag(pdata_jk$Inflation, 1)                        lag(pdata_jk$Debt, 1)
                                7.025992e-04                                4.489538e-03
              lag(pdata_jk$PopulationOld, 1)                lag(pdata_jk$Immigration, 1)
                                9.223506e-03                                1.866250e-03
           lag(pdata_jk$Immigration_att, 1) lag(pdata_jk$Anti.immigration_ethnic_att, 1)
                                1.458659e-05                                2.120925e-03
              lag(pdata_jk$Pronatalism, 1)                    lag(pdata_jk$Gov_left, 1)
                                1.132663e-04                                1.012800e-03
                lag(pdata_jk$Gov_right, 1)
                                4.304248e-04
```

Sample of jackknife results:

```
  lag(pdata_jk$GDP, 1) lag(pdata_jk$Unemployment, 1) lag(pdata_jk$Inflation, 1)
```

```
1           0.09409428                   0.002992756                -0.06114088
2           0.16007994                  -0.006010509                -0.11415406
  lag(pdata_jk$Debt, 1) lag(pdata_jk$PopulationOld, 1) lag(pdata_jk$Immigration, 1)
1            0.01064088                     0.08698868                   -0.4234522
2           -0.12336715                     0.27906685                   -0.3370520
  lag(pdata_jk$Immigration_att, 1) lag(pdata_jk$Anti.immigration_ethnic_att, 1)
1                       0.04551854                                    0.05512714
2                       0.05315702                                    0.14723413
  lag(pdata_jk$Pronatalism, 1) lag(pdata_jk$Gov_left, 1) lag(pdata_jk$Gov_right, 1)
1                0.0008662736                0.08622595                -0.03112373
2                0.0221515986                0.02257691                 0.01036963
```

Dropped
1 Hungary, Luxembourg, Poland, Slovakia
2 Spain

Middle-income + low-income – aggregate – A

Coefficients:

```
                            Estimate Std. Error t-value Pr(>|t|)
lag(pdata$GDP, 1)           -0.0152020  0.4224268 -0.0360  0.97132
lag(pdata$Unemployment, 1)  -0.0056427  0.0550784 -0.1024  0.91847
lag(pdata$Inflation, 1)     -0.1173064  0.0545378 -2.1509  0.03228 *
lag(pdata$Debt, 1)          -0.1962846  0.1588786 -1.2354  0.21763
lag(pdata$PopulationOld, 1)  0.3146361  0.2493247  1.2620  0.20794
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    96.655
Residual Sum of Squares: 85.374
R-Squared:      0.11671
Adj. R-Squared: 0.055088
F-statistic: 1.82812 on 5 and 16 DF, p-value: 0.16412
```

Middle-income + low-income – aggregate – A – JK:

Jackknife variances:

```
         lag(pdata_jk$GDP, 1)  lag(pdata_jk$Unemployment, 1)     lag(pdata_jk$Inflation, 1)
                6.514727e-03                   4.440334e-04                   2.961836e-06
        lag(pdata_jk$Debt, 1) lag(pdata_jk$PopulationOld, 1)
                9.763304e-03                   2.832590e-02
```

Sample of jackknife results:

```
  lag(pdata_jk$GDP, 1) lag(pdata_jk$Unemployment, 1) lag(pdata_jk$Inflation, 1)
1           -0.0256103                   -0.02397466                -0.1231708
2           -0.0470380                   -0.08611885                -0.08575907
  lag(pdata_jk$Debt, 1) lag(pdata_jk$PopulationOld, 1)
1           -0.20268979                     0.33233304
2           -0.17492907                     0.31327553
```

Dropped:
1 Hungary, Luxembourg, Poland, Slovakia

2 Spain

Middle-income + low-income – aggregate – B

Coefficients:

```
                                        Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Immigration, 1)                -0.18981    0.13485 -1.4076  0.16028
lag(pdata$Immigration_att, 1)             0.18795    0.10290  1.8266  0.06875 .
lag(pdata$Anti.immigration_ethnic_att, 1)  0.15271    0.17037  0.8963  0.37078
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    96.655
Residual Sum of Squares: 93.147
R-Squared:      0.036292
Adj. R-Squared: -0.024139
F-statistic: 3.54473 on 3 and 16 DF, p-value: 0.03858
```

Middle-income + low-income – aggregate – B – JK:

Jackknife variances:

```
               lag(pdata_jk$Immigration, 1)             lag(pdata_jk$Immigration_att, 1)
                                0.0140307949                                0.0007738439
lag(pdata_jk$Anti.immigration_ethnic_att, 1)
                                0.0036754500
```

Sample of jackknife results:

```
  lag(pdata_jk$Immigration, 1) lag(pdata_jk$Immigration_att, 1)
1                   -0.4531728                         0.1222808
2                   -0.2162695                         0.1779169
  lag(pdata_jk$Anti.immigration_ethnic_att, 1)
1                                   0.03237161
2                                   0.15362258
```

Dropped:
1 Hungary, Luxembourg, Poland, Slovakia
2 Spain

Middle-income + low-income – aggregate – C

Coefficients:

```
                          Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Pronatalism, 1) 0.0030483  0.0173747  0.1754   0.8608
lag(pdata$Gov_left, 1)    0.0155691  0.0729517  0.2134   0.8311
lag(pdata$Gov_right, 1)   0.0295849  0.0768841  0.3848   0.7007

Total Sum of Squares:    96.655
Residual Sum of Squares: 96.557
R-Squared:      0.0010092
Adj. R-Squared: -0.061634
```

```
F-statistic: 0.0552354 on 3 and 16 DF, p-value: 0.9823
```

Middle-income/low-income ratio

Coefficients:

```
                                          Estimate Std. Error t-value Pr(>|t|)
lag(pdata$GDP, 1)                         0.433619   0.530029  0.8181  0.41396
lag(pdata$Unemployment, 1)               -0.121159   0.063618 -1.9045  0.05782 .
lag(pdata$Inflation, 1)                   0.052700   0.065147  0.8089  0.41920
lag(pdata$Debt, 1)                        0.244743   0.232812  1.0512  0.29401
lag(pdata$PopulationOld, 1)               0.022257   0.184244  0.1208  0.90393
lag(pdata$Immigration, 1)                -0.028844   0.229530 -0.1257  0.90008
lag(pdata$Immigration_att, 1)            -0.072761   0.099699 -0.7298  0.46609
lag(pdata$Anti.immigration_ethnic_att, 1) -0.099222   0.103158 -0.9618  0.33692
lag(pdata$Pronatalism, 1)                 0.046353   0.036753  1.2612  0.20824
lag(pdata$Gov_left, 1)                    0.081822   0.104635  0.7820  0.43486
lag(pdata$Gov_right, 1)                   0.115495   0.091534  1.2618  0.20803
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    116.59
Residual Sum of Squares: 106.49
R-Squared:      0.086682
Adj. R-Squared: 0.0030901
F-statistic: 1.14645 on 11 and 16 DF, p-value: 0.39066
```

Middle-income/low-income ratio – JK

Jackknife variances:

```
                        lag(pdata_jk$GDP, 1)                lag(pdata_jk$Unemployment, 1)
                                5.944980e-01                                5.632832e-07
                    lag(pdata_jk$Inflation, 1)                        lag(pdata_jk$Debt, 1)
                                1.516684e-03                                4.300571e-02
                lag(pdata_jk$PopulationOld, 1)                lag(pdata_jk$Immigration, 1)
                                3.426845e-02                                3.625128e-04
            lag(pdata_jk$Immigration_att, 1) lag(pdata_jk$Anti.immigration_ethnic_att, 1)
                                1.102607e-03                                3.619953e-04
               lag(pdata_jk$Pronatalism, 1)                    lag(pdata_jk$Gov_left, 1)
                                5.552553e-05                                3.420533e-05
                  lag(pdata_jk$Gov_right, 1)
                                1.276110e-03
```

Sample of jackknife results:

```
  lag(pdata_jk$GDP, 1) lag(pdata_jk$Unemployment, 1) lag(pdata_jk$Inflation, 1)
1           0.06474429                    -0.1460861                -0.02226250
```

```
2           1.60681820                    -0.1475872                  0.05562677
  lag(pdata_jk$Debt, 1) lag(pdata_jk$PopulationOld, 1) lag(pdata_jk$Immigration, 1)
1             0.1540786                     0.01626948                   0.09859248
2             0.5688350                    -0.35396529                   0.06051294
  lag(pdata_jk$Immigration_att, 1) lag(pdata_jk$Anti.immigration_ethnic_att, 1)
1                      -0.08687026                                    -0.1566486
2                      -0.02045920                                    -0.1185962
  lag(pdata_jk$Pronatalism, 1) lag(pdata_jk$Gov_left, 1)  lag(pdata_jk$Gov_right, 1)
1                   0.03388922             -0.0114276642                   0.09592019
2                   0.04879231              0.0002694003                   0.02447484
```

Dropped

```
1                Hungary, Lithuania
2 Czechia, Ireland, United Kingdom
```

Middle-income/low-income ratio – A

Coefficients:

```
                           Estimate Std. Error t-value Pr(>|t|)
lag(pdata$GDP, 1)           0.401803   0.567944  0.7075   0.4798
lag(pdata$Unemployment, 1) -0.111585   0.065789 -1.6961   0.0909 .
lag(pdata$Inflation, 1)     0.047894   0.056290  0.8508   0.3955
lag(pdata$Debt, 1)          0.200098   0.243337  0.8223   0.4116
lag(pdata$PopulationOld, 1) 0.043338   0.225315  0.1923   0.8476
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    116.59
Residual Sum of Squares: 108.67
R-Squared:      0.067985
Adj. R-Squared: 0.0029602
F-statistic: 1.63338 on 5 and 16 DF, p-value: 0.20794
```

Middle-income/low-income ratio – A – JK

Jackknife variances:

```
           lag(pdata_jk$GDP, 1)  lag(pdata_jk$Unemployment, 1)    lag(pdata_jk$Inflation, 1)
                  0.5067686152                   0.0000130693                   0.0010722438
         lag(pdata_jk$Debt, 1) lag(pdata_jk$PopulationOld, 1)
                  0.0403074806                   0.0307746163
```

Sample of jackknife results:

```
  lag(pdata_jk$GDP, 1) lag(pdata_jk$Unemployment, 1) lag(pdata_jk$Inflation, 1)
1            0.1729003                    -0.1409451                -0.007011621
2            1.5966540                    -0.1337148                 0.058478647
  lag(pdata_jk$Debt, 1) lag(pdata_jk$PopulationOld, 1)
1             0.2010103                     0.001564328
2             0.6025448                    -0.349289580
```

Dropped

```
1 Hungary, Lithuania
2 Czechia, Ireland, United Kingdom
```

Middle-income/low-income ratio – B

```
Coefficients:
                                      Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Immigration, 1)              0.150503   0.226076  0.6657   0.5061
lag(pdata$Immigration_att, 1)         -0.012293   0.174372 -0.0705   0.9438
lag(pdata$Anti.immigration_ethnic_att, 1) -0.090485   0.111539 -0.8112   0.4179

Total Sum of Squares:    116.59
Residual Sum of Squares: 114.97
R-Squared:      0.013868
Adj. R-Squared: -0.047969
F-statistic: 0.311814 on 3 and 16 DF, p-value: 0.81657
```

Middle-income/low-income ratio – C

```
Coefficients:
                         Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Pronatalism, 1) 0.037681   0.040027  0.9414   0.3473
lag(pdata$Gov_left, 1)    0.017529   0.069264  0.2531   0.8004
lag(pdata$Gov_right, 1)   0.062442   0.057477  1.0864   0.2782

Total Sum of Squares:    116.59
Residual Sum of Squares: 115.64
R-Squared:      0.0081234
Adj. R-Squared: -0.054074
F-statistic: 0.520506 on 3 and 16 DF, p-value: 0.67422
```

Paper 4: Child Benefits and Fertility Behaviour: The Relationship between Benefit Size and Design and Fertility Rates in Europe

Abstract

Child benefits have been ascribed a small and positive effect on fertility rates, but a stronger relationship tends to be asserted in studies of single and explicitly pronatalist cases than in (less common) large-N comparative research. Moreover, the relationship between variation in benefit

size by child age and birth order and fertility rates is underexplored, even though benefit size has generally risen in aggregate *and* become more varied by child age and birth order over the past few decades.

To fill this knowledge gap, this paper conducts a pooled time series regression analysis of the relationship between aggregate benefit size, size variation by child age (between 2-year-olds and 9-year-olds), and size variation by birth order (between first, second, third, and fourth children), and aggregate and birth order-specific fertility rates in 26 European countries between 2002 and 2021, with country-fixed effects and panel-corrected standard errors. It uses data from the OECD TaxBen on benefit size and the Human Fertility Database on birth rates, while controlling for macroeconomic conditions (GDP growth and unemployment) and other family policies (full-rate-equivalent parental leave, childcare spending, and total family policy spending).

The paper finds a positive and statistically significant association between aggregate benefit size and fertility rates for 26 European countries in 2002-2021, reaffirming the scholarly consensus around child benefits as an important component of the pronatalist policy toolkit. It also provides some evidence of a "pronatalist premium" in size variation in favor of early childhood and higher birth orders, although only the latter relationship is (in some instances) statistically significant. These findings highlight the importance of disaggregating the association between child benefits and fertility by child age and birth order, while inviting further (smaller-N) research into potential "pronatalist premiums" in size variation by child age and birth order in higher-spending and explicitly pronatalist countries.

Key terms: child benefits, fertility, size, child age, birth order

Introduction

Global birth rates currently stand at an all-time low in recorded history. While the world is still growing and is expected to continue growing until the late 21st century, it has been growing (much) more slowly over the past several decades. In Europe, the slowdown in population growth

generally began in the middle of the 20th century (Chesnais 1992; Coale 1996; McKeown 2009), with immigration and growing life expectancy only partially mitigating the negative balance between births and deaths. All European countries have (long) fallen below the replacement rate of 2,1 children per woman (Kucera et al. 2000; Chawla, Betcherman & Banerju 2007; Frejka & Gietel-Basten 2016; Sobotka 2017). Together, declining fertility and mortality have contributed to a rapid increase in the average age of European populations (Dlugosz 2011; Murphy 2017).

While some European countries saw fertility decline as early as the late 19th century (Pendleton 1978; Hoffmann 2000), and others experienced multiple cycles of fertility growth, stagnation, and decline in their modern history, the currently observed birth rates are unprecedentedly low. In many places, fertility declines manifested themselves first as postponement of childbearing before appearing as lower completed fertility at the end of the reproductive age (Billari et al. 2006; Mills et al. 2011; Sobotka 2017). Both trends appear to be ongoing and contributing to further-declining short-term and long-term birth rates. Moreover, they are accompanied by at least two notable accompanying trends.

First, fertility has been becoming more polarised, as the share of households with two children has been declining, at the expense of rises both in the share of households with three or more children and especially those with zero or one (Tanturri et al. 2015; Kreyenfeld & Konietzka 2017; Kulu et al. 2017; Brini 2020). Fertility intentions, on the other hand, are also polarised but average out at a higher point. Most Europeans maintain (at least) a two-child norm (Edmonston et al. 2010; Gauthier 2013; Sobotka & Beaujouan 2014; Beaujouan & Berghammer 2019), yet are increasingly likely to end up having one or no children, as the gap between preferred and realised fertility continues to widen.

Second, the increasing polarisation of fertility has (at least partly) occurred along specific socioeconomic lines. Birth rates by education and income have typically followed an inverse U-curve, with high-income and highly educated and (especially) low-income and less educated people having more children, while those in the middle of the distribution would, all else being

equal, have fewer children (Doepke et al. 2022; Hellstrand et al. 2024). However, it has been low-income and less educated individuals that have accounted for almost the entire rise in (sometimes involuntary) childlessness in recent decades, often due to reported difficulties in forming a partnership (Saarela & Skirbekk 2020). While very large families of four or more children remain disproportionately likely to comprise low-income and less educated parents, the parallel prevalence of very large and very small families even *within* low-income and less educated demographics constitutes an additional level of fertility polarisation (Hellstrand et al. 2024).

But why do fertility trends matter? There is a rich literature at the intersection between political theory, social theory, demography, and economics on the notion of children as public goods, or the idea that "childrearing generates human capital from which all citizens benefit, regardless of whether they have children themselves" (Folbre 1994; see also George 1993; Engster 2007; Folbre 2008; Rose 2016; Bou-Habib & Olsaretti 2021). This human capital relates to several societal domains, including but not limited to contributing (future) labour supply to economic growth (Lee et al. 2014); mitigating the challenges to health and welfare systems (Lee & Mason 2012), maintaining cultural diversity (Signes-Pont et al. 2022), and managing the provision of ecosystem services (Bruno et al. 2021) and infrastructure services (Hummel & Lux 2007; Canzler 2008). Such scholarship has led demographers to recommend – in a worldwide expert survey (van Dalen & Henkens 2020) – pronatalist policies in any country with a fertility rate of 1,4 or lower.

The literature is also mindful of the risk that fertility increases might exacerbate some of the societal challenges listed above in the short run, as producing more children increases the number of dependent citizens in a population. Even in the long run, the societal costs associated with a higher number of children (mainly in terms of infrastructure and education), let alone the environmental toll of large populations (Cafaro & Crist 2012), might not necessarily be outweighed by said children's future contributions to the economy and society as adults (O'Sullivan 2020). However, albeit with caution and not without disagreement on their exact implications, scholars generally recognise the manifold relevance of fertility rates for societies

and the value of conducting research into the effectiveness of pronatalist policies. This value is compounded by the *political* implications of pronatalism, as efforts to raise births have been associated with a wide range of (typically nation-building and conservative) ideological platforms (Bartha et al. 2020; Inglot et al. 2022).

Having introduced some of the major fertility trends in recent decades and their implications, this paper proceeds by discussing the theoretical scholarship around fertility and situates its conceptualisation of pronatalist policy within the Beckerian structural framework of childbearing behaviour, while remaining conscious of cultural drivers. It then examines the key empirical (historical and contemporary) literature on pronatalist policies, which reveals strong household variation both in terms of (the design of) the policies themselves and their pronatalist effectiveness. Drawing on this variation, as well as the persisting heterogeneity in fertility behaviour summarised previously in this introduction, it derives its research questions from two major sources of variation: child age and birth order. These sources of variation provide the starting point for the analytical framework of the paper, which assesses the association between a specific family policy – child benefits – and fertility not only in terms of aggregate size but also in terms of size variation by child age and birth order. The final two sections present the results of the analysis and provide some conclusions on the role of child benefits as a pronatalist instrument, partly based on the findings of this paper and partly as a recommendation for further investigation.

Motivation and Justification

One of the most influential schools of thought on low fertility in the contemporary demography literature has been the "Second Demographic Transition" (SDT) (Chesnais 1987; Billari & Ortega 2002; Ortega 2002; Billari & Ortega 2006; Kohler; Lutz, Skirbekk & Testa 2006). This school of thought is rooted in the well-understood relationship between the socioeconomic development of countries and demographic trends, which has shown that fertility rates tend to decline as countries become wealthier and more educated, with societal norms shifting into a preference for fewer children, and in some cases, childlessness. The key theoretical assumption underpinning this school of thought is the expectation that this shift in norms leads to a "low-

fertility trap" (first proposed in Lutz, Skirbekk & Testa 2006), which posits that birth rates assume a self-perpetuating character, with continuously low fertility socialising future generations into normalising and eventually maintaining such behaviour.

Some of the trends around fertility behaviour discussed previously in the introduction seem to corroborate the key SDT assumptions. Births have indeed fallen not only below replacement level during the socioeconomic development of countries, but also at levels close to one child per woman in some *already developed* countries (Yoo & Sobotka 2018). The two key trends underpinning these declines – declining fertility desires and (especially) increasing rates of non-marital cohabitation and singlehood (Sassier & Lichter 2020) – are (primarily) culturally driven. Influencing them through policy is difficult and potentially undesirable. Yet, in most (European or other developed) countries, the gap between preferred and realised fertility remains even after controlling for partnership status (Beaujouan & Berghammer 2019), which warrants alternative (or at least additional) explanations.

The second key school of thought on fertility behaviour revolves around the classical conceptualisation of childbearing as a function of a Cost-Benefit Calculus by Gary Becker (Becker 1960; Becker 1991). Contrary to the self-perpetuating view of low fertility held by SDT scholars (most of whom have written on the subject much later than Becker), he understood fertility trends as highly malleable. In his view, whenever the perceived benefits of childbearing outweigh the perceived costs at a particular time and place, individuals will be more likely to decide in favour of having a child rather than against it. Thus, unlike SDT scholars, Becker did not view low fertility as (primarily) culturally determined and (largely) immune to policy, but primarily as a function of inadequate (intended or unintended) childbearing incentives.

In developed societies, Becker understood childbearing as a "normal good with diminishing returns" (Becker 1991). Most of the perceived benefits of childbearing, such as the sense of fulfilment derived from parenthood and the anticipated future sense of security and support in old age (e.g. Klobas & Ajzen 2013), can be derived from having one child and do not grow

proportionally with each new child. On the other hand, the cost of raising children continues to grow considerably with each new child, albeit not fully proportionally due to economies of scale (e.g. Brandolini 2007), thus producing the aforementioned diminishing returns on childbearing in terms of parental happiness. Yet, within these broad contours, the exact point at which the marginal utility of having a(nother) child will become negative depends on the childbearing and childrearing conditions of the individual(s) in question, which in turn are influenced by the socioeconomic and institutional context around them.

An important effort at reconciling the cultural (SDT) and structural (Beckerian) frameworks has been made by Esping-Andersen and Billari (2015). Similar to the SDT framework, they base their theoretical expectations regarding contemporary fertility behaviour on one of the main societal trends in recent decades: growing gender egalitarianism. Unlike the SDT framework, however, they reject the suggestion of a linear decline in fertility based on the liberalisation of social norms, proposing instead a U-curved relationship with considerable sensitivity to policy. Their presupposition is that gender egalitarianism tends to generate public demand for adequate policies to ensure work-family reconciliation and financial stability, which in turn tends to raise fertility. Empirically, their expectation is vindicated by the currently *negative* correlation (at the country level) between traditional understandings of fertility as a societal duty and fertility levels in Europe (Arslanagic-Wakefield & Sarygulov 2023), which adds to the persistence of replacement-level fertility desires among Europeans and provides further basis for questioning the SDT-informed pessimistic view of future fertility trends, and by association, of pronatalist policy.

This paper draws on the Beckerian framework and Esping-Andersen & Billari's work in positing that, despite the cultural shifts towards lower (preferred and realised) birth rates, childbearing remains a "normal good" sensitive to policy incentives. Within the broad context of below-replacement fertility in Europe, there is considerable cross-country variation in terms of overall fertility levels as well as the accompanying trends discussed earlier, despite a relative convergence in childbearing norms around a two-child preference (Beaujouan & Berghammer

2019; Edmonston et al. 2010; Gauthier 2013; Sobotka & Beaujouan 2014). While this variation does not point to the role of policy in and of itself, it does leave room for it, thus warranting the discussion of historical and contemporary pronatalist policy and its effects that follows.

Political ideologies revolving around the pursuit of more births and larger populations date as far back as Ancient Rome (Togman 2019); in more contemporary history, they are associated with illiberal regimes such as Nazi Germany, Italy under Mussolini, and the Soviet Union under Stalin (Pendleton 1978), but also with liberal governments, such as interwar Sweden (Myrdal & Myrdal 1934) and postwar France (Gauthier 1993). This phenomenon has grown more rapidly in recent decades amidst below-replacement birth rates of (often far) less than 2,1 children per woman and broader demographic change. According to the United Nations' World Population Policies Database[74], the share of governments in the world which self-reported the adoption of policies to raise or maintain their fertility levels rose more than threefold from 9% in 1976 to 28% in 2019 (United Nations 2021).

This trend has not gone unnoticed in the academic literature, where fertility incentivisation is also considered to have gained political and policy prominence, especially in post-socialist East European countries (Frejka & Gietel-Basten 2016; Speder 2016). Palpable demographic concerns, including consistently low fertility rates, high emigration, and rapid population aging, in combination with the dominance of increasingly conservative political ideologies, have led to a re-traditionalisation of the family policy landscape (Shiffman et al. 2002; Hantrais 2004; Javornik 2016; Ghodsee 2018). This process has typically manifested itself in the form of prioritisation of longer and better-paid parental leave at the expense of childcare, as well as, crucially for this paper, the provision of increasingly large child benefits (Wilk 2020; Cook et al. 2022; Inglot et al. 2022). Seventeen out of the 21 post-socialist countries in Europe currently declare themselves to be pronatalist (United Nations 2021), as pronatalism has become a cornerstone of (typically right-

[74]The World Population Policies database is based on a biannual survey of governments around the world, which are asked to describe the current fertility rate in their countries (as too low, satisfactory, or too high), as well as their own policy orientation towards it (raise, no intervention, or lower).

wing) government manifestos across the region (Cook et al. 2022; Haskova et al. 2022; Szalma et al. 2022), but also in Western Europe, most notably in Italy (De Giorgi et al. 2023).

The effectiveness of pronatalist policy measures, which can be defined as "any government action directed at influencing the fertility rate of a given population upward" (Togman 2019), is a key topic in the demography literature. The most basic conclusion common to the majority of the (numerous) studies on this subject is that these measures produce positive yet mostly small effects at a considerable financial cost. A systematic review by Bergsvik et al. (2021) concludes that the scholarly consensus around the effectiveness of pronatalist measures is more positive today than in the past, partly thanks to the availability of more sophisticated research methods. Yet, there is (at least) equally strong consensus around the expensiveness of these policies, as indicated in the same meta-study (ibid), which found considerably low increases in fertility (usually in single digits) even in cases of drastic increases in policy investment.

Within the generally lukewarm assessment of the (cost-)effectiveness of pronatalist policies discussed earlier, there are several types of variation. First, single-case studies of particularly large (and explicitly pronatalist) policy instruments, which typically take the form of child benefits, reveal stronger effects than cross-country analyses of policy instruments that are relevant to childbearing but might not be explicitly conceived of – or implemented as – pronatalist measures. In fact, the aforementioned elasticities (ibid) tend to be higher for the most sizeable policies, leading scholars to posit that pronatalist policies large enough to constitute "critical junctures" (Neyer and Andersson 2008) in the development of family policy in their respective countries ought to be theorised and analysed differently from smaller (or more gradually implemented) measures.

To name but a few examples of the former type of studies and policies, increasing tax benefits for parents has been linked to a boost in fertility in Spain (Azmat and González 2010) and the United Kingdom (Brewer et al. 2012). Similarly, raising the size of direct transfers to parents has elevated fertility in Hungary (Gabos et al. 2009), Argentina (Garganta et al. 2017), and Israel (Cohen et al. 2013). In Russia, pronatalist housing and education subsidies are estimated to have

caused a 12% increase in the share of households with two or more children (Slonimczyk & Yurko 2013) and a 20% increase in fertility in the first decade since their introduction in 2007, at the cost of an estimated 50 000 US dollars for each additional child (Sorvachev & Yakovlev 2020). Yet, such as the Polish case (Hrytsai 2021) comprising large monthly allowances for all children (among other measures) indicate above all else the frequently-observed short-lived effects of pronatalist policies. Many of the gains in question have turned out to have originated from fertility recuperation by previously-postponing parents, rather than from an increase in completed fertility.

As for cross-country studies, the observed effects of pronatalist policies remain (mostly) positive, but their durability and (especially) size tend to be lower. Gauthier and Hatzius (1997) detected a miniscule increase of 0.07 births for every 25% increase in benefit size over time in Europe. Based on data from 16 OECD countries, Luci-Greulich and Thévenon (2013) found that boosting child benefits even by 1 percentage point of GDP raised fertility only by 0.02 births on average. Their analysis also attributes positive (yet similarly small) effects to the other two key components of the family policy triad (leave and childcare), a finding also established in other comparative studies (Luci-Greulich & Thevenon 2011; Thomas et al. 2022). On a similarly large sample, however, Kalwij (2010) found no pronatalist effects for child benefits in Western Europe.

Importantly, just like fertility trends themselves have exhibited strong sub-population variation both historically and today, the effectiveness of pronatalist policies has also been far from uniform for different categories of parents and children, depending also on the policy instrument of choice. As discussed above, even work leave, which has historically been regarded as the least effective pronatalist tool among the aforementioned family policy triad, tends to be net beneficial for fertility. However, its effects are usually stronger for wealthier and older parents (Thomas et al. 2022), which sometimes paradoxically disincentivises (short-term) fertility, as people delay childbearing until they can maximise the utility of the leave package.

Strong income differentials are also associated with the effectiveness of pronatalist child

benefits. For instance, Hungary's focus on housing top-ups and tax-based benefits issued as a fixed income percentage might constitute an obstacle to the success of its pronatalist policy, as any effects on high-income individuals, who might be less sensitive to policy incentives in the first place (Luci-Greulich & Thevenon 2011: 36-7), seem to have been insufficient to affect the national birth rate. Yet, other measures have been linked with superior (and considerable) effects among high-income households (Milligan 2005; Cohen et al. 2013), including a major recent fertility decline in France (Elmallakh 2023) attributed to a reduction of tax rebates (at an elasticity of 0,38). This somewhat paradoxically higher policy sensitivity of wealthier parents might be explained by better information about policy changes and higher standards for children's quality of life (Bergsvik et al. 2021).

Yet, some of the most notable sources of variation (both in the design and fertility effects of family policies) relate to children rather than parents. The size of child benefits is known to vary considerably based on the age of the child in most European countries (Aaerts et al. 2023; Bornukova et al. 2024), and so does the effectiveness of pronatalist policies, although the direction and scale of the variation is ambiguous. On the one hand, among the single-case studies of pronatalist policies reviewed earlier, lump sums ("baby bonuses" or "birth grants") issued upon childbirth or early on in the child's life tend to yield stronger pronatalist effects than more evenly distributed support across childhood (Milligan 2005; Boccuzzo et al. 2008; Drago et al. 2011; Gonzalez 2013)[75]. On the other hand, cross-country studies caution *against* front-loading the benefits towards younger children, with Luci-Greulich and Thevenon (2013) linking child benefits with fertility only when they are maintained after the first year of the child's life. One possible interpretation would be that front-loaded support delivers an "age premium" only when policies are specifically designed and funded with a pronatalist goal, which might not be true for many of the cases encompassed by cross-country studies.

Another major source of child-related variation is birth order. Child benefits tend to prioritise

[75]These studies indicate limited cost-effectiveness, however, with baby bonuses in Australia and Canada coming at an estimated cost of $90,000 and $223,625, respectively, for every additional child born.

higher birth orders (Daly 2015; Aaerts et al. 2023), although this tends to apply mostly to third children and middle-income households (Fidanovski 2023). Some of the East European cases reviewed earlier were linked with stronger fertility effects at times when benefit size was higher for higher birth orders (Sorvachev & Yakovlev 2020; Hrytsai 2021). Even policies that apply equally to all children, such as affordable childcare and parental leave, have produced stronger effects for second children and beyond (Bergsvik et al. 2021), possibly because adequate work-family reconciliation becomes (even) more important to parents at older ages.

Analytical Framework

This paper seeks to provide two main contributions to the family policy and demography literature corresponding to its two research questions stated at the end of this section. The first contribution is to test the general consensus in the literature on pronatalist policy against major empirical shifts in recent decades and even years. As documented in Paper 1 in this thesis, as well as in other scholarship, family policy in Europe has become considerably larger (Ferrarini et al. 2012; Daly & Ferragina 2018; Aaerts et al. 2023) and more pronatalist over time (Frejka & Gietel-Basten 2016), which makes it crucial to revisit some of the assumptions in the literature in the light of changing policies with a potentially larger potential for effectiveness.

Second, as discussed earlier, child age and birth order have emerged as key sources of pronatalist variation, both in terms of policy design and effects. Yet, the direction and scale of these distinct effects remain insufficiently clear. As indicated above, policy prioritisation of younger child ages has been variously linked both negatively and positively with fertility. Birth order differentials leave even more room for further research and have mostly been examined in single-case rather than cross-country studies. Moreover, while several systematic reviews of both single-case and cross-country studies (of pronatalist policies in general) have emerged in recent years, individual cross-country studies tend to be at least a decade old (Hautzier & Gauthier 1997; Luci-Greulich & Thevenon 2013), thus not capturing the more recent rise in pronatalist policies across Europe, many of which are unequally distributed by child age and birth order. This leaves important knowledge gaps both in terms of aggregate fertility effects as well as the child age and birth order

differentials of interest.

There are several reasons to expect the association between family policy and fertility to be affected by size variation by child age and birth order. All else being equal, parents with younger children are younger, thus being more likely to be financially vulnerable and sensitive to benefit size. Moreover, past scholarship (Zavecz 2017; Suli 2022) has raised concerns about the incentivising potential of pronatalist policy in countries with low levels of public trust in government (Hosking 2019), as the policy target group might feel sceptical about the durability of the policy. Scepticism of this sort has been proposed as an explanation for the generally short-lived effectiveness of pronatalist policy in Eastern Europe, where citizens might have rushed to take advantage of measures they feared might not be sustained, thus often merely accelerating rather than altering their childbearing decisions (Frejka & Gietel-Basten 2016; Speder 2016). Finally, in terms of birth orders, pronatalist policymakers might be prioritising support for large families in the expectation that most people will have at least one child regardless of policy, or in the hope of closing the aforementioned gap between preferred and actual fertility.

Thus, drawing on the extensive demography, family policy, and political science literature summarised so far, the two research questions in this paper read: *(1) How is benefit size associated with birth rates?*; *(2) How is size variation by child age and birth order associated with birth rates?* Child benefits have been selected among the aforementioned family policy triad as the policy instrument of interest in the analysis for two reasons: (a) they tend to be provided for a sufficiently long time and number of birth orders to allow us to capture potential variation in size and relationship with births; (b) their size tends to vary by child age and birth order. The following hypotheses are formulated:

H1: The association between benefit size and births will be positive but small.
H2: The (positive) association between benefit size and births will be stronger for higher birth orders.
H3: The (positive) association between benefit size and births will be stronger when benefits are

larger at younger child ages.

Data and Methods

The data on the independent variable comprise the size of child benefits at three child ages (2, 9, and 17 years) and four birth orders (from first to fourth) for a middle-income household[76] in the 26 European member countries[77] of the OECD from 2002 to 2021. The size is expressed in aggregate terms (for all four children and at an average level of the three referent ages) as well as in terms of child-contingent payments (CCP), i.e. specifically for the relevant child age and birth order (in line with Corak et al. 2005; Figari et al. 2011; Pezer 2022; Fidanovski 2023; Bornukova et al. 2024). All benefit sizes refer to the marginal increase in household income as a result of the relevant change in the number of children, thus comparing the household to a household with an otherwise identical total income apart from the totality of child-related government financial transfers made to the household[78].

The benefit data have been derived from the dedicated Online Platform version of the OECD TaxBen simulator, which provides comprehensive and methodologically consistent information on total child benefit size[79] in OECD member countries in the form of annual values applicable as of January of the relevant year. This broad analytical sample offers strong variation between countries in terms of benefit size, overall socioeconomic development, welfare regimes, demographic trends, self-declared political orientations regarding birth rates, and geographical location.

The data on the dependent variable comprise aggregate (World Bank and Human Fertility

[76]Total gross household income: 150% of the median national wage (first adult = 100%; second adult = 50%).

[77]Austria, Belgium, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Lithuania, Latvia, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom.

[78]For instance, benefit size of 10% for the first child in a given country in a given year means that the total benefits received by a middle-income household as defined in this paper corresponded to a 10% boost to the income of the household in January of the relevant year. Benefit size of, for instance, 6% for a second child would mean that the benefits increased the household income by an additional 6%, i.e. compared to if the household contained only one child. The same logic applies for the third and fourth child, respectively.

[79]The OECD TaxBen simulator includes all types (direct or tax-based) of income-supplementing (i.e. excluding parental leave) monetary support issued to parents and legal guardians. All relevant support types are listed in Appendix 1.1.

Database[80]) and birth order-specific fertility rates at the national level for the 26 aforementioned countries from 2002 to 2021. Moreover, five control variables are included to account for the fact that birth rates tend to be influenced by a wide range of factors besides child benefits. These include policy controls (total family policy spending as a share of annual GDP, the total length of all types of paid work leave[81], and childcare spending as a share of annual GDP), whose relevance for fertility is well-documented (Hautzier & Gauthier 1997; Greulich & Thevenon 2013), and macroeconomic indicators (year-on-year GDP growth and unemployment), which have also been variously linked with fertility (Sobotka et al. 2011; Alderotti et al. 2021). The data for the policy controls have been collected from the OECD Family Policy Database, while those for the macroeconomic controls have been derived from the general OECD database. The full dataset is available in Appendix 4.1.

The method used in the analysis is pooled time series regression with fixed country effects and panel corrected standard errors (Dielman 1983; Ward & Leigh 1993) in the statistical software R (PCSE and PLM packages). This method captures differences within countries across time and aggregates them into cumulative estimates. It is well-suited to this analysis, as child benefits can take a wide range of (tax-based or direct) forms, each of which could change from one year to the next (even if only as an inflation adjustment) and affect the cumulative size values on the independent variable. The analysis comprised 22 indicators: nine on the independent variable (for the aggregate, child age-specific and birth order-specific dimensions of interest outlined above), six on the dependent variable (as stated above; for the aggregate and birth order-specific dimensions of interest), and five control variables. The dataset consisted of 10 400

[80]The World Bank measures raw fertility rates, while the Human Fertility Database measures adjusted fertility rates accounting for the trajectory of the mothers' mean age at childbirth. However, both figures indicate the estimated number of children per woman in the relevant country as an extrapolation of the values observed in the year of interest. Any regressions including this variable are run twice (once with each of these two indicators on the dependent variable). Fertility data by birth order were only available from the Human Fertility Database. Rather than as number of children per woman, these are available on a standardised scale from 0 to 10 000, where the values for the different birth orders are expressed in relation to each other (e.g. first births are always more numerous than second births) as well as between countries (e.g. Country X has a higher standardised number of third births than Country Y in a given year if it indeed experienced a higher number of third births in the year of interest).

[81]This includes the full number of available days of maternity and parental leave, provided that it is issued at a replacement rate of at least 50% of previous income.

observations[82]. The regression models also included a correction for autocorrelation and standardisation bringing all observations into the same range and allowing for a meaningful comparison between the variables.

Finally, a jackknife robustness test was performed to ensure that outlier countries on both the independent variable (benefit size) and dependent variable (births) do not excessively influence the results. While establishing and interpreting country-level relationships exceeds the scope of this paper, the broad expectation is that the omission of the lowest-benefit size and lowest-fertility countries will result in stronger associations. In terms of benefit size, this expectation is derived from the previously-made observation that child benefits are too small to meet the full financial costs of raising children (Vanhuysse et al. 2023), leaving only those countries that come closer to doing so with a realistic chance of influencing fertility decisions. In terms of fertility, the expectation that the associations will be boosted the most by the exclusion of the lowest-fertility countries is derived from the previously-discussed and well-established "low-fertility trap" notion in the demography literature (Lutz et al. 2006), which posits that lowest-low fertility rates close to one child per woman have a self-perpetuating tendency and thus tend to be less sensitive to policy.

All independent and control variables were lagged by one and two years (in two separate sets of models). These lags were selected based on the (limited) insights on time lags in the literature on the effects of pronatalist policies specifically, as the broader behavioural change literature tends to agree that "no generalisations [can] be made about the optimal interval for examining causal effects" (Cohen et al. 2003; Griep et al. 2021). The one-year lag is the closest full-year lag to the sum of the 9-month duration of an average pregnancy, plus the estimated 6-month average period necessary for successful conception among healthy couples (Gonzalez 2013). This methodological choice is in line with the landmark comparative study by Gauthier and Hatzius (2017) of the fertility effects of family policies in 22 countries over a period of two decades. A one-year lag in a study of fertility effects has also been used in the East European (Hungarian)

[82]All missing values in the dataset were replaced with the mean values of the remaining observations for the respective variable.

context by Gabos et al. (2009). This means that each of the 19 pairs of values making up the regression estimates consists of values on the independent variable for a given year and values on the dependent variable for the subsequent year.

The two-year lag, on the other hand, is informed by the fact that adults of reproductive age might require additional time to familiarise themselves with the benefit package available at any given time (especially if the package has experienced recent changes) and acquire a reasonable level of confidence that the current package will remain in place for the foreseeable future. The level of confidence is often a key condition for an effective pronatalist intervention (Speder 2016), especially in countries characterised by low public trust in the government (Zavecz 2017), and has been indicated by respondents in recent qualitative research as a core obstacle to the effectiveness of pronatalist policies (Suli 2020). A two-year time lag is consistent with another important comparative study by Morvai et al. (2019) of the effects of pronatalist policies in 15 European countries. This means that each of the 19 pairs of values making up the regression estimates consists of values on the independent variable for a given year and values on the dependent variable for the given year plus two.

In addition to allowing appropriate time for child benefits to have been able to affect the fertility rate, the usage of time lags helps minimise endogeneity concerns, as it increases the likelihood that the obtained estimates indicate the impact of benefit size on fertility rates, rather than the impact of fertility rates on benefit size.

Results

Table 4.1 below describes the independent and dependent variables for the 20 years of interest. On the independent variable, as previously summarised also in Paper 3, there is a clear upward trend over time. In 2021, child benefits were larger[83] by over a third (39,2 percentage points) than in 2002, in line with the trend of growth in benefit size discussed in the introduction, which

[83]Benefit size is expressed here (in the column "total benefit size") as a sum of the size of the benefits available to a household with four children.

was interrupted only for several years in the aftermath of the Great Recession. In terms of child age, child benefits were larger for 9-year-old children compared to 2-year-old children in all 20 years in the sample, with no noticeable trend over time. In terms of birth order, child benefits were larger (in per-child terms) for third and fourth children than for first and second children in almost every year in the sample, with the gap widening even further in more recent years (mainly as a result of increased size for third children).

On the dependent variable, the raw fertility rate was the lowest in 2002 (1,49) and highest in 2010 (1,65), with no noticeable trend over time. The adjusted fertility does not exhibit any discernible patterns, either. In terms of birth order, first and second births were considerably more common than third and fourth births throughout the period of interest, with no major changes over time apart from the gradual decrease in recent years for first, third, and fourth births.

Table 4.1: A descriptive overview of benefit size and design and birth rates – by year

Year	Total benefit size; %	Benefit size (2→ 9y.o); %	Raw fertility; ch/ woman	Adj. fertility; ch/ woman	Ben. size (1st ch.) ;%	Ben. size (2nd ch.); %	Ben. size (3rd ch.); %	Ben. size (4th ch.); %	Births (1st); stand.	Births (2nd); stand.	Births (3rd); stand.	Births (4th); stand.
2002	18,1	-2,35	1,485	1,771	4,36	4,66	7,02	5,71	7798	5148	1549	405
2003	17,8	-3,23	1,502	1,773	4,57	4,52	6,74	5,61	7807	5174	1567	404
2004	18,3	-5,17	1,528	1,790	5,07	4,71	6,49	5,63	7879	5247	1606	421
2005	22,4	-4,10	1,541	1,759	5,2	4,91	6,49	5,85	7881	5292	1617	417
2006	22	-3,59	1,576	1,753	4,87	4,95	6,61	5,54	7944	5402	1677	437
2007	22,7	-3,57	1,600	1,747	5,01	4,66	7,16	5,85	7976	5478	1748	463
2008	23,3	-5,62	1,650	1,835	5,37	4,94	7,19	5,81	8089	5671	1853	502

2009	23,1	-4,65	1,646	1,860	5,1	5,02	6,83	6,12	8098	5689	1847	493
2010	22,9	-5,06	1,651	1,845	5	4,85	6,71	6,35	8095	5698	1855	492
2011	23,2	-5,65	1,606	1,751	5,38	5,61	6,07	6,18	8010	5571	1753	453
2012	23,7	-5,25	1,604	1,717	5,18	5,82	6,56	6,19	7980	5561	1743	443
2013	23,3	-4,53	1,573	1,710	5,07	5,61	6,45	6,15	7927	5451	1673	416
2014	21,8	-4,02	1,590	1,744	5,09	5,59	5,71	5,39	7951	5519	1720	436
2015	23,2	-3,91	1,588	1,752	4,99	5,35	6,88	5,96	7968	5609	1741	429
2016	25,5	-3,70	1,602	1,739	4,94	5,15	8,42	6,97	7984	5662	1782	447
2017	25,7	-3,72	1,582	1,728	4,87	5,25	9	6,57	7907	5579	1756	440
2018	24,8	-3,38	1,565	1,756	4,64	5,02	8,81	5,35	7892	5553	1746	439
2019	25,6	-3,52	1,548	1,718	4,85	5,58	8,92	6,26	7890	5493	1698	417
2020	25,6	-3,69	1,520	1,734	5,54	5,29	8,66	6,16	7842	5377	1616	388
2021	25,2	-3,57	1,548	1,496	5,05	6,02	8,02	6,12	7860	5465	1593	366

Table 4.2 below describes the independent and dependent variables for the 26 countries of interest. On the independent variable, as previously summarised also in Paper 3, the total benefit size is at least one standard deviation higher than the mean value of the sample in Belgium, Hungary, and Slovakia[84], and at least one standard deviation lower than the mean in Iceland, Spain, and the United Kingdom. These findings correspond to the family policy literature consensus, with Hungary in particular ranking among the highest family policy spenders (e.g. Speder et al. 2016). The observed list of outlier countries changes based on the birth order, with Hungary switching from being a positive outlier for the first three children to a negative one for the fourth child, in line with the much-problematised (Guy & Kovacz 2006) retrenchment for fourth children discussed in Paper 1 of this thesis. In addition to total benefit size, the United Kingdom is also a negative outlier for benefit size for third and fourth children, but not for first and second children, which can be attributed to its famous two-child benefit cap (e.g. Andersen et al. 2022). In terms of child age, all but three of the countries (Luxembourg, Poland, and the United Kingdom) exhibit negative mean ratios, indicating larger benefits for 2-year-old children or equal benefit sizes for 2-year-old and 9-year-old children.

[84]For the last six years of the sample, the countries in this group were joined (and overtaken) in terms of total benefit size by Poland as a result of its sizeable and explicitly pronatalist Family 500+ child benefit package.

On the dependent variable, the list of positive outlier countries includes France, Iceland, Ireland, Sweden, and the UK for raw total fertility, as well as Ireland, Norway, and Sweden for adjusted total fertility, with average rates not far from the population replacement level of 2,1 children per woman. The list of negative outlier countries includes Portugal and Spain (for both raw and adjusted fertility), with average rates between 1,3 and 1,55 children per woman. Contrary to the independent variable, the picture here does not change much by birth order, with the same list of countries featuring as outliers also for most birth orders individually.

Table 4.2: A descriptive overview of benefit size and design and birth rates – by country

Country	Total ben. size; %	Benefit size (2→ 9 y.o); %	Raw fertility; ch/ woman	Adj. fertility; ch/ woman	Ben. size (1st ch.) ;%	Ben. size (2nd ch.); %	Ben. size (3rd ch.); %	Ben. size (4th ch.); %	Births (1st); stand.	Births (2nd); stand.	Births (3rd); stand.	Births (4th); stand.
Austria	28,4	-6,209	1,44	1,68	9,108	5,914	6,486	6,395	7488	4990	1497	393
Belgium	36,3	-3,555	1,72		5,231	8,13	12,159	10,769				
Czechia	21,8	-12,961	1,496	1,75	7,402	3,081	5,383	5,933	8189	5602	1304	312
Denmark	16,2	-4,003	1,764	1,95	3,937	3,892	3,669	4,716	8351	6720	2247	475
Estonia	33	-4,766	1,583	1,93	4,017	6,05	14,636	8,271	8080	5299	1881	494
Finland	15	-11,475	1,686	1,86	5,225	2,943	3,271	3,534	7489	5689	2272	715
France	34,1	-6,225	1,941		4,841	7,390	13,714	8,145				
Germany	22,7	0	1,440	1,60	6,091	5,487	5,339	5,773				

Greece	17	-1,906	1,369		1,366	1,642	7,248	6,756				
Hungary	50,4	-16,71	1,395	1,58	13,163	15,829	18,969	2,447	7375	4329	1495	470
Iceland	9,1	-1,174	1,946		0,914	1,802	2,422	3,928				
Ireland	14,8	-0,852	1,894	2,17	3,681	3,548	3,843	3,752	8128	6476	3096	998
Italy	31,2	-1,327	1,353	1,50	4,060	3,633	7,354	16,188				
Latvia	26,9	-1,015	1,503		6,199	6,605	7,492	6,578				
Lithuania	29	-2,761	1,482	1,87	3,447	4,777	12,931	7,82	8068	5416	1349	304
Luxem-bourg	33	2,26	1,525		6,830	8,161	9,816	8,16				
Nether-lands	12	-0,498	1,692	1,83	4,522	2,386	2,466	2,58	8156	6243	2020	501
Norway	13	-5,431	1,767	2,00	3,442	3,304	3,178	3,063	8458	6618	2365	499
Poland	32,1	0,729	1,34	1,51	2,935	8,025	10,791	10,368	7081	4447	1150	276
Portugal	20,5	-9,214	1,366	1,63	3,539	6,698	6,395	3,855	8650	4478	930	214
Slovakia	44,5	-14,821	1,394	1,70	7,800	11,099	14,909	10,71	7531	4344	1178	397
Slovenia	24,5	-2,893	1,486	1,64	11,252	4,619	4,414	4,227	7999	5321	1343	290
Spain	8,1	-2,157	1,312	1,45	1,764	1,016	3,711	1,626	7430	4519	927	220
Sweden	16,1	0	1,816	1,96	3,193	3,387	4,118	5,370	8411	6765	2300	597
Switzer-land	13	0	1,485	1,68	3,271	3,140	2,936	3,656	7817	5464	1469	286
United Kingdom	10,3	0,180	1,774	2,01	3,72	1,880	1,878	2,798				
Mean	23,6	-4,107	1,576	1,76	5,036	5,171	7,290	6,055	7924	5454	1695	438
SD	11,5	5,052	0,199	0,20	2,876	3,3	4,721	3,344	450	866	603	199
Outlier cutoff (>)	45,9	0,945	1,775	1,96	10,788	11,77	16,732	12,743	8374	6321	2299	836
Outlier cutoff (<)	12,4	-9,159	1,376	1,57	2,161	1,87	2,569	2,710	7473	4587	1092	238

Tables 4.3 and 4.4 below summarise the results of the pooled time series regression analysis, with the full list of results being available in Appendix 4.2 in the form of 32 sets of tables corresponding to the regression models. As outlined in Table 4.3, the paper finds support for H1, as benefit size is positively associated with both raw and adjusted fertility (both before and after including the control variables and for both sets of lags), with the association being statistically significant in all four relevant models for the raw measure and in two of the four models for the adjusted measure. These results indicate that for every 10% increase in total benefit size in the sample, fertility rates within one to two years increases by between 1,14% and 2,8%. The

jackknife robustness tests[85] (see Appendix 4.2 for further details), show that the results are not primarily attributable to a limited number of countries, as the associations, in fact, increase in strength in 16 of the 24 relevant outlier-omitting tests at the aggregate level and maintain their sign in all of them (Table 4.3). As expected, the associations generally become even stronger when negative outliers were omitted (as opposed to when positive outliers were omitted). This is the case both when the lowest-benefit-size countries and especially the lowest-fertility countries are omitted as outliers.

Table 4.3: Summary of the association between aggregate and birth order-specific child benefit size and fertility[86]

	1-year lag	Jack-knife test (births)	Jack-knife test (bene-fits)	1-year lag with controls	Jack-knife test (births)	Jack-knife test (bene-fits)	2-year lag	Jack-knife test (births)	Jack-knife test (bene-fits)	2-year lag with controls	Jack-knife test (births)	Jack-knife test (bene-fits)
Total raw fertility	**0,224*** **	0,223 (> 1 SD); 0,272 (< 1 SD)	0,228 (> 1 SD); 0,236 (< 1 SD)	**0,197** **	0,230 (> 1 SD); 0,268 (< 1 SD)	0,213 (> 1 SD); 0,212 (< 1 SD)	**0,166*** **	0,161 (> 1 SD); 0,205 (< 1 SD)	0,161 (> 1 SD); 0,178 (< 1 SD)	**0,149***	0,186 (> 1 SD); 0,198 (< 1 SD)	0,167 (> 1 SD); 0,170 (< 1 SD)

[85]In each model, only the countries whose values differed from the mean value in the sample by at least two standard deviations (upwards or downwards) were excluded; in models where no such countries existed in the sample, the countries with a deviation of at least one standard deviation in either direction were treated as outliers, instead. This approach resulted in the following list of outliers:

- *total*: raw birth rate – France, Iceland, Ireland, United Kingdom (> 1 SD); Greece, Italy, Poland, Portugal, Spain (< 1 SD); adjusted birth rate – Ireland, Norway, Sweden (> 1 SD); Portugal, Spain (< 1 SD); benefit size – Belgium, Hungary, Slovakia (> 1 SD); Iceland, Spain, United Kingdom (< 1 SD)
- *third births/children*: births – Ireland, Norway, Sweden (> 1 SD); Portugal, Spain (< 1 SD); benefits – Hungary (> 2 SD); Iceland, Netherlands, United Kingdom (< 1 SD)
- *fourth births/children*: births – Ireland (> 2 SD); Portugal, Spain (< 1 SD); benefits – Italy (> 2 SD); Hungary, Netherlands, United Kingdom (< 1 SD)

[86]Statistical significance is denoted in the bolded cells in Table 4.2 (as well as in Table 4.3 below) as follows: "." =statistically significant (p <0.05); "*" = highly statistically significant (p <0.01); "**" = very highly statistically significant (p <0.001).

Total adjusted fertility	**0,17***	0,145 (> 1 SD); 0,192 (< 1 SD)	0,149 (> 1 SD); 0,180 (< 1 SD)	**0,28*****	0,151 (> 1 SD); 0,114 (< 1 SD)	0,192 (> 1 SD); 0,184 (< 1 SD)	0,07			0,089	
First births	0,043			0,037			0,039			0,017	
Second births	0,097			0,066			0,091			0,059	
Third births	**0,124***	0,107 (> 1 SD); 0,127 (< 1 SD)	0,144 (> 2 SD); 0,138 (< 1 SD)	**0,1***	0,086 (> 1 SD); 0,104 (< 1 SD)	0,128 (> 2 SD); 0,112 (< 1 SD)	**0,1.**	0,086 (> 1 SD); 0,099 (< 1 SD)	0,122 (> 2 SD); 0,123 (< 1 SD)	0,081	
Fourth births	**0,123***	0,109 (> 2 SD); 0,120 (< 1 SD)	0,135 (> 2 SD); 0,108 (< 1 SD)	**0,102***	0,101 (> 2 SD) 0,099 (< 1 SD)	0,116 (> 2 SD) 0,089 (< 1 SD)	0,088			0,075	

The results are more ambiguous for birth order, as there are no statistically significant findings for first and second births and some for third and fourth births.. These associations for higher birth orders confirm H2. For every 10% increase in benefit size in the sample for the respective birth order, the number of third and fourth births within one to two years increases by between 0,86% and 1,44%. The jackknife robustness tests reveal a mixed picture, as the associations become stronger after the exclusion of outliers in exactly half (ten) of the relevant tests, as opposed to staying the same or becoming weaker in the remaining ten tests, while maintaining their sign in all twenty tests. Moreover, while the associations generally become stronger when the lowest-fertility countries are omitted (in line with the expectations), they also become stronger when the *highest*-benefit size countries are omitted (contrary to expectations).

Finally, variation in benefit size in favour of 9-year-old children (Table 4.4 below) is negatively associated with fertility both before and after controls were included (and for both lags), in line with H3, which predicted a pronatalist premium for benefit packages concentrated around early childhood. However, the association is not significant in any of the models.

Table 4.4: Summary of the association between child benefit size by child age and fertility

	1-year lag	1-year lag	2-year lag	2-year lag

		with controls		with controls
Aggregate raw fertility	-0,087	-0,043	-0,053	0
Aggregate adjusted fertility	-0,073	-0,07	-0,054	-0,054

Discussion and Limitations

The confirmation of H1 matches the scholarly consensus on child benefits as an important component of the pronatalist policy toolkit. In the existing literature, its association with fertility is lower (Hautzier & Gauthier 1997; Greulich & Thevenon 2013) or absent altogether (Kalwij 2010) in larger-N studies compared to smaller-N studies. This might be because pronatalism is not necessarily among the intended policy functions of child benefit packages across Europe, both in terms of governments' self-declaration (United Nations 2019) and the policy design of the packages (Fidanovski 2023), let alone their primary one. However, the positive finding under H1 allows for the possibility that increases in child benefit size can exercise a (small) pronatalist function even in countries where no such function is intended. More importantly, given the aforementioned rise in child benefit size across Europe in recent years (confirmed also by the descriptive analysis in Table 4.1 earlier), which has partly been driven by pronatalist considerations, the confirmation of H1 suggests that raising child benefit size can yield pronatalist dividends even when the increased benefit levels are still far lower than the costs of raising (a) child(ren), as remains the case throughout the sample. This suggestion is bolstered by the fact that the association remains positive even after controlling for several family policies and macroeconomic indicators.

It is important, however, not to overstate the significance of this positive finding. The weakness of the association, despite its consistent statistical significance across the regression models, hints at the importance of the *exact* benefit size. As suggested also by the twenty jackknife robustness tests at the aggregate level, the relationship might be disproportionately (albeit not exclusively) driven by countries with higher benefit sizes, further limiting the generalisability of the pronatalist potential of child benefits. Overall, however, the obtained estimate in this paper (0,1143-0,28) is not dissimilar to the results in a meta-review of the fertility effects of a wide

range of child benefit increases (Bergsvik et al. 2021), highlighting the highly cost-ineffective nature of incentivizing births through child benefits, which seem to provide no more than a one-fifth "return" on (policy) investment. These important caveats to the positive finding regarding the relationship between benefit size and fertility highlight the necessity of a broad pronatalist policy toolkit, reinforcing the scholarly consensus that any individual policy instrument, especially in a large-N study that also includes countries which do not pursue pronatalist objectives, will yield limited returns at best.

The evidence of a "pronatalist premium" for specific birth orders (H2) in this paper is mixed and difficult to interpret. The associations are generally stronger and only statistically significant for third and fourth children. This finding ought to be strongly caveated, however, by the presence of explicitly pronatalist countries in the sample, mainly in Eastern Europe, which have in recent years been favouring higher birth orders (as argued in Paper 1 of this thesis), although the jackknife robustness tests suggest that, if anything, the associations between benefit size and births are stronger *without* the positive-outlier countries. This relates to the already-outlined limitation (with regards to the findings for total benefit size) stemming from the heterogeneity of the sample, which includes countries with different levels of policy interest – if any – in pronatalism. Another caveat is the rather low number of third and fourth births (for all countries and years in the sample) relative to other births, which suggests that even large increases in this category are unlikely to affect the overall birth rate considerably.

The evidence of a pronatalist premium by child age is weak. The observed association is in the direction predicted by H3 in all eight models (with and without controls; raw and adjusted fertility; one- and two-year lags), but it is not statistically significant in any of the eight models. As in the case of birth order, one cannot rule out the presence of several outliers inviting further research (through smaller-N studies) into whether the pronatalist premium is stronger after a certain threshold, i.e. in countries which prioritise early childhood particularly strongly. It seems important to investigate this aspect further since, as discussed in the introduction, child benefits tend to be larger in early childhood in virtually all years in the sample (as per the descriptive

analysis in Table 4.1), perhaps due to policy considerations as diverse as pronatalism and the long-term development of children. In terms of pronatalism specifically, the prospect of reaping pronatalist returns by prioritising early childhood (without necessarily altering the aggregate benefit size) deserves further attention in the face of aging populations and resource-constrained governments, but it is not corroborated by these findings.

Overall, it might be helpful to *illustrate* in the following few paragraphs the observed pronatalist cost-ineffectiveness of child benefits in this paper to clarify better why these results cannot be used as a strong basis for supporting drastic increases in benefit size for pronatalist reasons.

First, one can think of the results in relation to the current average fertility rate in the European Union, which as of 2022 stood at 1,46 children per woman (European Commission 2024). In the two of the four regression models with control variables for which statistical significance was observed, the association between total benefit size and fertility ranged between 0,114 and 0,28 depending on the lags applied and the measure of fertility used. This means that for every 10% increase in benefit size, the fertility rate in Europe can be expected to increase by somewhere between 1,149 and 2,8%. At this growth rate, using child benefits to raise births in Europe to achieve the population replacement rate of 2,1 children per woman[87] would necessitate increasing the benefit size by a striking 156,4%[88]-384,13%[89].

Applying this hypothetical increase to the total benefit size for the first four children in the most recent year in the analytical sample used in the paper (2021) would mean raising the total benefit size (expressed through the marginal increase to household income attributable to child benefits) from the existing 25,2% to 64,6-122% for middle-income households and from the existing 41,4%

[87]This estimate is, of course, contingent on the assumption that the observed associations in Paper 4 would also hold at the much-higher levels of benefit size considered in these hypothetical scenarios. As child benefits have so far been far smaller than this in Europe (or anywhere else in the world), it is currently impossible to assess the validity of this assumption. Nevertheless, the hypothetical scenarios are intended to serve as a projected *illustration* of the cost-(in)effectiveness of child benefits as a pronatalist measure; as such, they are based on the observed associations at the baseline level.

[88]2,1/1,46 = 1,438 → the average fertility in the EU in 2022 would have to rise by 43,8% to reach the replacement level. The higher association observed in the results is 0,28, so the minimum necessary increase in benefit size amounts to 43,8*(10/2,8) = 156,4%.

[89]43,8*(10/1,114)

(shown in Paper 3 but not in this paper) to 106,2-200,4% for low-income households. In other words, bridging the gap between current and replacement-level births would require doubling to quintupling the existing benefit size and providing benefits which are overall large enough to more than double the pre-transfer income of middle-income households, as well as more than tripling the pre-transfer income of low-income households. In these scenarios, the increased size of the benefits would also likely exceed the actual costs of raising children. To date, no such endeavor (either in terms of the size of the change or the resulting benefit size after the change) has been attempted in child benefit policymaking in Europe or beyond, which makes its potential future emergence seem distinctly unlikely.

Second, the "pronatalist premiums" by birth order observed in the paper, while statistically significant, must also be interpreted with considerable caution. The finding of a positive association between benefit size and fertility for higher birth orders carries a particularly high risk of misinterpretation. First, the observed statistically significant associations for third and fourth births are rather weak, ranging from 0,1 to 0,124. Second, and more importantly, these associations translate into modest contributions to the overall birth rate, due to the inevitably lower total number of third and fourth children in any given population compared to lower birth orders.

In fact, as per the current average distribution of children by birth order in Europe (as of 2022), 46,3% of new births are first-born children, 35% are second-born children, 12,5% are third-born children, and 6,1% are fourth-born and subsequent children. Thus, for the sake of illustration, in order for a hypothetical increase in the benefit size for fourth children to make an equal contribution to the overall fertility rate as would a hypothetical benefit increase *of the same magnitude* for third children, the association between benefit size and fourth births would have to be almost three times (35/12,5[90] = 180%) the size of the association between benefit size and

[90]The share of second and third children in the population, respectively. These are taken here as the pool of available household types which could grow by an additional child.

third births. However, the estimated associations in this paper for these two birth orders, respectively, are almost identical (0,100 – 0,124 for third births and 0,101 – 0,123 for fourth births). Thus, to obtain equal contributions to the overall fertility rate from new third births and new fourth births, countries would need to increase benefits for fourth children by an inconceivable 180 times) more than they would increase benefits for third children. Consequently, given the within-population distribution of children by birth order outlined here, the cost-ineffectiveness of child benefits as a pronatalist instrument manifests itself even more starkly.

Conclusion

This paper finds a positive and statistically significant association between total benefit size and fertility rates for 26 European countries in 2002-2021, even after controlling for macroeconomic and policy factors. These findings reaffirm the scholarly consensus around child benefits as an important component of the pronatalist policy toolkit. The paper also provides some evidence of a "pronatalist premium" in size variation in favor of higher birth orders (especially third and fourth children). These findings highlight the importance of disaggregating the association between child benefits and fertility by child age and birth order, while inviting further (smaller-N) research into potential "pronatalist premiums" in size variation by child age and birth order in higher-spending and explicitly pronatalist countries.

In addition to the suggestions for further research proposed in direct response to the limitations outlined in the previous section, another potential angle for additional investigation would be to focus on smaller-N samples and take advantage of household- or individual-level fertility data, which might produce more statistically sophisticated estimates, as well as elucidating possible differentials by socioeconomic characteristics, mainly income and education, which were impermeable to the research design in this study.

Another promising scholarly opportunity would be to move away from a rationalistic understanding of fertility incentives. The (potential) pronatalist premium for early childhood, in fact, contradicts social-policy considerations, which suggest that child benefits should be larger

in *later* childhood to match higher childrearing costs. One ought to allow for the possibility that (prospective) parents are not aware of the trajectory of childrearing costs across childhood, or at least that it might not feature strongly in their childbearing decision-making. Instead, they might be overestimating the size of the benefits available to them based on the (higher) amounts they are due to receive in the immediate future. Similarly, increases in benefit size for higher birth orders might play into parents' anchored expectations of said size based on the benefits they had received for their existing children, making the incentivizing potential of even relatively marginal increases disproportionately strong. Such considerations invite the question of whether subjective response mechanisms (Loewenstein & Thaler 1989; Harris & Laibson 2001; Hariri et al. 2006; Barlow et al. 2016) might also be playing a role in the effectiveness of pronatalist policy instruments.

Bibliography

Aaerts, E., Marx, I., & Parolin, Z. (2023). *Minimum income support for families with children in Europe and the US: Where does it stand?* (Working Paper No. 22/03). University of Antwerp.

Aassve, A., Cavalli, N., Mencarini, L., Plach, S., & Sanders, S. (2021). Early assessment of the relationship between the COVID-19 pandemic and births in high-income countries. *Proceedings of the National Academy of Sciences of the United States of America, 118*(36).

Anser, M. K., Yousaf, Z., Khan, M. A., Xuan Hinh Voo, Nassani, A. A., Alotaibi, S. M., … (2020). The impacts of COVID-19 measures on global environment and fertility rate: Double coincidence. *Air Quality Atmosphere and Health, 13*(9), 1083–1092.

Ariely, D. (2008). *Predictably irrational: The hidden forces that shape our decisions.* HarperCollins Publishers.

Arslanagic-Wakefield, P., Sarygulov, A. (2023). The value of family. *The Works in Progress Newsletter.*

Azmat, G., & González, L. (2010). Targeting fertility and female participation through the income tax. *Labour Economics, 17*(3), 487–502.

Barlow, P., Reeves, A., McKee, M., Galea, G., & Stuckler, D. (2016). Unhealthy diets, obesity and time discounting: A systematic literature review and network analysis. *Obesity Reviews, 17*(9), 810–819.

Bartha, A., Boda, Z., & Szikra, D. (2020). When populist leaders govern: Conceptualising populism in policy making. *Politics and Governance, 8*(3), 71–81.

Beaujouan, E., & Berghammer, C. (2019). The gap between lifetime fertility intentions and completed fertility in Europe and the United States: A cohort approach. *Population Research and Policy Review, 38,* 507–535.

Bergsvik, J., Fauske, A., & Hart, R. K. (2021). Can policies stall the fertility fall? A systematic review of the (quasi-)experimental literature. *Population and Development Review, 47*(4), 913–964.

Billari, F. C., Liefbroer, A. C., & Philipov, D. (2006). The postponement of childbearing in Europe: Driving forces and implications. *Vienna Yearbook of Population Research,* 1–17.

Boccuzzo, G., Caltabiano, M., Dalla Zuanna, G., & Loghi, M. (2008). The impact of the bonus at birth on reproductive behaviour in a lowest-low fertility context: Friuli-Venezia Giulia (Italy), 1989–2005. *Vienna Yearbook of Population Research, 6,* 125–147.

Bornukova, K., Hernández, A., & Picos, F. (2024). *Investing in children: The impact of EU tax and benefit systems on child poverty and inequality.* (JRC Working Papers on Taxation and Structural Reforms No. 2/2024).

Bou-Habib, P., & Olsaretti, S. (2021). *Children or migrants as public goods?* [Working Paper]. Retrieved from http://hdl.handle.net/10230/47334

Brickman, P., & Campbell, D. T. (1971). Hedonic relativism and planning the good society. In M. H. Appley (Ed.), *Adaptation level theory: A symposium* (pp. 287–302). Academic Press.

Brini, E. (2020). Childlessness and low fertility in context: Evidence from a multilevel analysis on 20 European countries. *Genus, 76,* 1–38.

Bruno, D., Sorando, R., Álvarez-Farizo, B., Castellano, C., Céspedes, V., Gallardo, B., … Comín, F. A. (2021). Depopulation impacts on ecosystem services in Mediterranean rural areas. *Ecosystem Services, 52.*

Cafaro, P., & Crist, E. (Eds.). (2012). *Life on the Brink: Environmentalists Confront Overpopulation.* University of Georgia Press.

Canzler, W. (2008). Transport infrastructure in shrinking (East) Germany. *German Politics & Society, 26*(2), 76–92. https://doi.org/10.3167/gps.2008.260205

Chawla, M., Betcherman, G., & Banerji, A. (2007). *From red to gray: The "Third Transition" of aging populations in Eastern Europe and in the former Soviet Union.* The World Bank.

Chesnais, J. (1992). *The Demographic Transition: Stages, Patterns, and Economic Implications.* Oxford University Press.

Chesnais, J.-C. (1987). Quand un people en devient deux: Une Allemagne et l'autre. *Population et Sociétés, 209,* 1–4.

Coale, A. (1972). *The growth and structure of human populations: A mathematical investigation.* Princeton Legacy Library.

Cohen, A., Dehejia, R., & Romanov, D. (2013). Financial incentives and fertility. *Review of Economics and Statistics, 95*(1), 1–20.

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Erlbaum.

Daly, M. (2015). *Child-related financial transfers and early childhood education and care.* Discussion Paper, UN Women.

Daly, M., & Ferragina, E. (2018). Family policy in high-income countries: Five decades of development. *Journal of European Social Policy, 28*(3), 255–270.

Dielman, T. E. (1983). Pooled cross-sectional and time series data: A survey of current statistical methodology. *The American Statistician, 37*(2), 111–122.

Diener, E., Lucas, R. E., & Scollon, C. N. (2009). Beyond the hedonic treadmill: Revising the adaptation theory of well-being. In E. Diener (Ed.), *The science of well-being* (pp. 287–302). Springer.

Doepke, M., Hannusch, A., Kindermann, F., & Tertilt, M. (2023). The economics of fertility: A new era. *Handbook of the Economics of the Family, 1*(1), 151–254.

Dumont, G.-F., & Descroix, P. (1988). La spécificité du comportement démographique de la France: Mesure de la surfécondité relative de la France par rapport aux autres pays industriels à faible fécondité précoce de 1963 à 1986. *Histoire, Economie et Société, 7*(3), 419–432.

Edmonston, B., Lee, S. M., & Wu, Z. (2010). Fertility intentions in Canada: Change or no change? *Canadian Studies in Population, 37*(3-4), 297–337.

Elmallakh, N. (2023). Fertility and labor supply responses to child allowances: The introduction of means-tested benefits in France. *Demography, 60*(5), 1493–1522.

Engster, D. (2008). *The Heart of Justice.* Oxford University Press.

Epley, N., Keysar, B., Van Boven, L., & Gilovich, T. (2004). Perspective taking as egocentric anchoring and adjustment. *Journal of Personality and Social Psychology, 87*(3), 327–339.

Esping-Andersen, G., & Billari, F. C. (2015). Re-theorizing family demographics. *Population and Development Review, 41*(1), 1–31.

Fidanovski, K. (2024). What policy functions are reflected in the distribution of financial support for parents by child age and birth order? An analysis of 28 European countries. *Social Policy & Administration, 58(3),* 458–473.

Folbre, N. (1994). Children as public goods. *American Economic Review, 84,* 86–90.

Folbre, N. (2008). *Valuing Children: Rethinking the Economics of the Family.* Harvard University Press.

Frejka, T., & Gietel-Basten, S. (2016). Fertility and family policies in Central and Eastern Europe after 1990. *Comparative Population Studies, 41*(1), 3–56.

Fukuda, N., & Saotome, T. T. (2018). Fertility preferences in Japan. In *Family Demography in Asia: A Comparative Analysis of Fertility Preferences* (pp. 171–189). Springer.

Gabos, A., Gál, R. I., & Kézdi, G. (2009). The effects of child-related benefits and pensions on fertility by birth order: A test on Hungarian data. *Population Studies, 63*(3), 215–231.

Gal, D., & Rucker, D. (2018). The loss of loss aversion: Will it loom larger than its gain? *Journal of Consumer Psychology, 28*(3), 497–516. *(Page numbers approximate—please confirm details.)*

Garganta, S., Gasparini, L., Marchionni, M., & Tappatá, M. (2017). The effect of cash transfers on fertility: Evidence from Argentina. *Population Research and Policy Review, 36*(1), 1–24.

Gauthier, A. (1993). Towards renewed fears of population and family decline? *European Journal of Population / Revue Européenne de Démographie, 9*(2), 143–167.

Gauthier, A. (2013). Family policy and fertility: Do policies make a difference? In A. Buchanan & R. Rotkirch (Eds.), *Fertility Rates and Population Decline: No Time for Children?* (pp. 41–59). Palgrave Macmillan.

Gauthier, A., & Hatzius, J. (1997). Family benefits and fertility: An econometric analysis. *Population Studies, 51,* 295–306.

Ghodsee, K. (2018). *Why women have better sex under socialism.* Vintage Books.

Gietel-Basten, S. (2023). Depopulation or population decline? Demographic nightmares and imaginaries. *Vienna Yearbook of Population Research, 21. (Online first—verify final details.)*

Gonzalez, L. (2013). The effect of a universal child benefit on conceptions, abortions, and early maternal labor supply. *AEJ Economic Policy, 5*(3), 160–188.

Griep, Y., Vranjes, I., Kraak, J., Dudda, L., & Li, Y. (2021). Start small, not random: Why does justifying your time-lag matter? *The Spanish Journal of Psychology, 24*(45).

Hantrais, L. (2004). *Family policy matters: Responding to family change in Europe.* The Policy Press.

Harris, C., & Laibson, D. (2001). Dynamic choices of hyperbolic consumers. *Econometrica, 69*(4), 935–957.

Hariri, A. R., Brown, S. M., Williamson, D. E., Flory, J. D., de Wit, H., & Manuck, S. B. (2006). Preference for immediate over delayed rewards is associated with magnitude of ventral striatal activity. *Journal of Neuroscience, 26*(51), 13213–13217.

Hellstrand, J., Nisén, J., & Myrskylä, M. (2024). Educational field, economic uncertainty, and fertility decline in Finland in 2010–2019. *European Sociological Review.*

Hoffmann, D. L. (2000). Mothers in the motherland: Stalinist pronatalism in its pan-European context. *Journal of Social History, 34*(1), 35–54.

Hummel, D., & Lux, A. (2007). Population decline and infrastructure: The case of the German water supply system. *Vienna Yearbook of Population Research, 5,* 167–191. https://doi.org/10.1553/populationyearbook2007s167

Inglot, T., Szikra, D., & Rat, C. (2022). *Mother, families, or children? Hungary, Poland, and Romania.* University of Pittsburgh Press.

Javornik, J. (2016). Maternal employment in post-socialist countries: Understanding the implications of childcare policies. In T. Roosalu & D. Hofacker (Eds.), *Rethinking gender, work and care in a new Europe: Theorizing markets and societies in the post-postsocialist era* (pp. 189–214). Palgrave Macmillan.

Kahneman, D. (2011). *Thinking, fast and slow.* Farrar, Straus and Giroux.

Kalwij, A. (2010). The impact of family policy expenditures on fertility in Western Europe. *Demography, 47*(2), 503–519.

Kreyenfeld, M., & Konietzka, D. (2017). *Childlessness in Europe: Contexts, causes, and consequences.* Springer.

Kucera, T., Kucerova, O., Opara, O., & Schaich, E. (2000). *New demographic faces of Europe: The changing population dynamics in countries of Central and Eastern Europe.* Springer.

Kulu, H., Hannemann, T., Pailhé, A., Neels, K., Krapf, S., González-Ferrer, A., & Andersson, G. (2017). Fertility by birth order among the descendants of immigrants in selected European countries. *Population and Development Review,* 31–60.

Lee, R. D., & Mason, A. (2012). *Population aging and the generational economy: A global perspective.* Edward Elgar.

Lee, R., Mason, A., & Members of the NTA Network. (2014). Is low fertility really a problem? Population aging, dependency, and consumption. *Science, 346*(6206), 229–234.

Lino, M., Kuczynski, K., Rodriguez, N., & Schap, T. (2017). *Expenditures on children by families, 2015.* (Miscellaneous Report No. 1528-2015). United States Department of Agriculture, Center for Nutrition Policy and Promotion.

Loewenstein, G., & Thaler, R. H. (1989). Anomalies: Intertemporal choice. *Journal of Economic Perspectives, 3*(4), 181–193.

Luci-Greulich, A., & Thévenon, O. (2013). The impact of family policies on fertility trends in developed countries. *European Journal of Population / Revue Européenne de Démographie, 29,* 387–416.

Lutz, W., Skirbekk, V., & Testa, M. R. (2006). The low-fertility trap hypothesis: Forces that may lead to further postponement and fewer births in Europe. *Vienna Yearbook of Population Research, 4,* 167–192.

McKeown, R. (2009). The epidemiologic transition: Changing patterns of mortality and population dynamics. *American Journal of Lifestyle Medicine, 3*(1), 19–36.

Mills, M., Rindfuss, R. R., McDonald, P., Te Velde, E., & ESHRE Reproduction and Society Task Force. (2011). Why do people postpone parenthood? Reasons and social policy incentives. *Human Reproduction Update, 17*(6), 848–860.

Moore, D. A., & Dev, A. S. (2020). Overconfidence. In V. Zeigler-Hill & T. Shackelford (Eds.), *Encyclopedia of Personality and Individual Differences* (pp. 3382–3386). Springer.

Morvai, A. (2019). *Evaluation of family policy measures and their impact on fertility.* HEFTA Research Institute.

Murphy, M. (2017). Demographic determinants of population aging in Europe since 1850. *Population and Development Review, 43,* 257–283.

Novemsky, N., & Kahneman, D. (2005). The boundaries of loss aversion. *Journal of Marketing Research, 42*(2), 119–128.

O'Sullivan, J. (2020). *Silver tsunami or silver lining? Why we should not fear an ageing population.* Sustainable Population Australia. (Discussion Paper)

Pendleton, B. F. (1978). An historical description and analysis of pronatalist policies in Italy, Germany, and Sweden. *Policy Sciences, 9*(1), 45–70.

Pezer, M. (2022). Public policies supporting families with children across welfare regimes: An empirical assessment of six European countries. *Journal of European Social Policy.*

Podestà, F. (2002). Recent developments in quantitative comparative methodology: The case of pooled time series cross-section analysis. *DSS Papers Soc, 3*(2), 5–44.

Rose, J. (2016). *Free Time.* Princeton University Press.

Saarela, J., & Skirbekk, V. (2020). Childlessness and union histories: Evidence from Finnish population register data. *Journal of Biosocial Science, 52*(1), 78–96.

Sassler, S., & Lichter, D. T. (2020). Cohabitation and marriage: Complexity and diversity in union-formation patterns. *Journal of Marriage and Family, 82*(1), 35–61.

Slonimczyk, F., & Yurko, A. (2013). Assessing the impact of the maternity capital policy in Russia using a dynamic model of fertility and employment (No. 7705). IZA Discussion Papers.

Sobotka, T. (2004). Is lowest-low fertility explained by the postponement of childbearing? *Population and Development Review, 30*(2), 195–220.

Sobotka, T. (2017). Post-transitional fertility: Childbearing postponement and the shift to low and unstable fertility levels. *Vienna Institute of Demography Working Papers, 01/2017.*

Sobotka, T., & Beaujouan, É. (2014). Two is best? The persistence of a two-child family ideal in Europe. *Population and Development Review, 40*(3), 391–419.

Soll, J., Palley, A., Klayman, J., & Moore, A. (2023). Overconfidence in probability distributions: People know they don't know, but they don't know what to do about it. *Management Science. Advance online publication. (Check final volume/issue/page details.)*

Sorvachev, I., & Yakovlev, E. (2020). Short-and long-run effects of a sizable child subsidy: Evidence from Russia (No. 13019). IZA Discussion Papers.

Speder, Z. (2016). Fertility decline and the persistence of low fertility in a changing policy environment—A Hungarian case study. In R. Rindfuss & M. Choe (Eds.), *Low fertility, institutions, and their policies: Variations across industrialized countries.* Springer.

Suli, T. (2022). *Pathways to parenthood in a low fertility context: A grounded theory study of childbearing trajectories among couples in the Republic of Serbia.* [Doctoral Dissertation, University of Oxford].

Szalma, I., Haskova, H., Olah, L., & Takacs, J. (2022). Fragile pronatalism and reproductive futures in European post-socialist contexts. *Social Inclusion, 10*(3), 82–86. https://doi.org/10.17645/si.v10i3.6128

Tanturri, M. L., Mills, M., Rotkirch, A., Sobotka, T., Takács, J., Miettinen, A., … Nasiri, D. (2015). State-of-the-art report: Childlessness in Europe. *Families and Societies, 32,* 1–53.

Thomas, J., Rowe, F., Williamson, P., … (2022). The effect of leave policies on increasing fertility: A systematic review. *Humanit Soc Sci Commun, 262*(9).

Togman, R. (2019). *Nationalizing Sex: Fertility, Fear, and Power.* Oxford University Press.

Ullah, M. A., Moin, A. T., Araf, Y., Bhuiyan, A. R., Griffiths, M. D., & Gozal, D. (2020). Potential effects of the COVID-19 pandemic on future birth rate. *Frontiers in Public Health, 8,* 578438.

Van Dalen, H. P., & Henkens, K. (2021). When is fertility too low or too high? Population policy preferences of demographers around the world. *Population Studies, 75*(2), 289–303.

Ward, M. M., & Leigh, J. P. (1993). Pooled time series regression analysis in longitudinal studies. *Journal of Clinical Epidemiology, 46*(7), 645–659.

Wilk, S. (2020). The role of family policy in solving demographic problems: Study of the Polish Program Family 500+. *European Journal of Sustainable Development, 9*(4), 84–92.

Yoo, S. H., & Sobotka, T. (2018). Ultra-low fertility in South Korea: The role of the tempo effect. *Demographic Research, 38,* 549–576.

Zavecz, G. (2017). Post-communist societies of Central and Eastern Europe. In S. Zmerli & T. W. G. van der Meer (Eds.), *Handbook on political trust.* Elgar Online.

Appendix 4.2

(Legend: JK = jackknife resampling test)

1. Association between total benefit size and raw fertility; 1-year lag; no controls

```
Coefficients:
                                Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Total.Benefit.Size, 1) 0.223978   0.049864  4.4918 8.81e-06 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    128.05
Residual Sum of Squares: 117.96
R-Squared:      0.078799
Adj. R-Squared: 0.030118
F-statistic: 20.1762 on 1 and 25 DF, p-value: 0.00013912
```

JK based on fertility

```
Jackknife variances:
lag(pdata_jk$Total.Benefit.Size, 1)
                      0.0006096712

Sample of jackknife results:
lag(pdata_jk$Total.Benefit.Size, 1)                                    dropped
1               0.2228958 United Kingdom, Sweden, Ireland, Iceland, France
2               0.2722788 Spain, Portugal, Poland, Italy, Greece
```

JK based on total benefit size

```
Jackknife variances:
lag(pdata_jk$Total.Benefit.Size, 1)
                      1.760371e-05

Sample of jackknife results:
lag(pdata_jk$Total.Benefit.Size, 1)                            dropped
1                           0.2280180     Belgium, Hungary, Slovakia
2                           0.2364094 United Kingdom, Spain, Iceland
```

2. Association between total benefit size and raw fertility; 1-year lag; with controls

```
Coefficients:
                                  Estimate  Std. Error t-value Pr(>|t|)
lag(pdata$Total.Benefit.Size,  1)      0.197177   0.064868  3.0396 0.0024**
lag(pdata$Leave, 1)                    0.048815   0.070762  0.6898 0.4906
lag(pdata$Childcare.spending,  1)      0.016831   0.093412  0.1802 0.8570
lag(pdata$Family.policy.spendi     1)  0.022883   0.079804  0.2867 0.7744
lag(pdata$GDP, 1)                     -0.118889   0.088568 -1.3423 0.1801
lag(pdata$Unemployment, 1)            -0.085277   0.047949 -1.7785 0.0759.
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
Total Sum of Squares:    128.05
Residual Sum of Squares: 114.79
R-Squared:      0.10354
Adj. R-Squared: 0.046478
F-statistic: 5.48622 on 6 and 25 DF, p-value: 0.00097196
```

Jk based on fertility

```
Jackknife variances:
lag(pdata_jk$Total.Benefit.Size, 1)                  lag(pdata_jk$Leave, 1)
3.646882e-04                                                  5.841822e-04lag
(pdata_jk$Childcare.spending, 1) lag(pdata_jk$Family.policy.spending,1)
1.531243e-05                                                  1.446476e-02
lag(pdata_jk$GDP, 1)                           lag(pdata_jk$Unemployment, 1)
1.069891e-02                                                  4.591078e-04

Sample of jackknife results:
lag(pdata_jk$Total.Benefit.Size, 1)                  lag(pdata_jk$Leave, 1)
```

```
1 0.2296582                                                    0.004688637
2 0.2678518                                                    0.019991159
lag(pdata_jk$Childcare.spending,  1) lag(pdata_jk$Family.policy.spending,1)
1 0.007491666                                                   -0.1282384
2 0.015317886                                                    0.1123006lag
(pdata_jk$GDP, 1)                          lag(pdata_jk$Unemployment, 1)
1 0.03952443                                                    -0.1167228
2 -0.16734661                                                   -0.1595764

dropped
1 France, Iceland, Ireland, Sweden, United Kingdom
2 Greece, Italy, Poland, Portugal, Spain
```

JK based on total benefit size

```
Jackknife variances:
lag(pdata_jk$Total.Benefit.Size, 1)                lag(pdata_jk$Leave, 1)
1.579375e-07                                                  4.058033e-05
lag(pdata_jk$Childcare.spending, 1) lag(pdata_jk$Family.policy.spending,1)
2.178775e-04                                                  3.828172e-04
lag(pdata_jk$GDP, 1)                          lag(pdata_jk$Unemployment, 1)
1.001901e-03                                                  3.412897e-04

Sample of jackknife results:
lag(pdata_jk$Total.Benefit.Size, 1)                lag(pdata_jk$Leave, 1)
1 0.2131911                                                    0.03315394
2 0.2123963                                                    0.02041340
lag(pdata_jk$Childcare.spending, 1) lag(pdata_jk$Family.policy.spending,1)
1 -0.0004268272                                                0.036367535
2 0.0290945196                                                -0.002763894lag
(pdata_jk$GDP, 1)                          lag(pdata_jk$Unemployment, 1)
1 -0.14933562                                                  -0.07171832
2 -0.08602998                                                  -0.10866638

dropped
1 Belgium, Hungary, Slovakia
2 Spain, Iceland, United Kingdom
```

3. Association between total benefit size and adjusted fertility; 1-year lag; no controls

```
Coefficients:
                              Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Total.Benefit.Size, 1) 0.170352   0.082673  2.0605   0.0399 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    184.83
Residual Sum of Squares: 180.36
R-Squared:      0.024166
Adj. R-Squared: -0.030163
F-statistic: 4.24586 on 1 and 25 DF, p-value: 0.049896
```

JK based on adjusted fertility

```
Jackknife variances:
lag(pdata_jk$Total.Benefit.Size, 1)
                       0.000563859

Sample of jackknife results:
lag(pdata_jk$Total.Benefit.Size, 1)                                    dropped
1               0.1448382 United Kingdom, Sweden, Ireland, Iceland, France
2               0.1922256 Spain, Portugal, Poland, Italy, Greece


Full sample coefficients again for comparison:
lag(Total.Benefit.Size, 1) 0.170352
```

JK based on total benefit size

```
Jackknife variances:
lag(pdata_jk$Total.Benefit.Size, 1)
                       0.000477824

Sample of jackknife results:
lag(pdata_jk$Total.Benefit.Size, 1)                             dropped
1                           0.1490552     Belgium, Hungary, Slovakia
2                           0.1804704 United Kingdom, Spain, Iceland

Full sample coefficients again for comparison:
lag(Total.Benefit.Size, 1) 0.170352
```

4. **Association between total benefit size and adjusted fertility; 1-year lag; with controls**

```
Coefficients:
                                  Estimate Std. Error t-value  Pr(>|t|)
lag(pdata$Total.Benefit.Size, 1)  0.284503   0.073453  3.8733 0.0001229 ***
lag(pdata$Leave, 1)              -0.096417   0.054973 -1.7539 0.0801112 .
lag(pdata$Childcare.spending, 1) -0.015097   0.078742 -0.1917 0.8480373
lag(pdata$Family.policy.spending, 1) -0.111984   0.094043 -1.1908 0.2343516
lag(pdata$GDP, 1)                -0.641119   0.380407 -1.6854 0.0925959 .
lag(pdata$Unemployment, 1)       -0.164235   0.071095 -2.3101 0.0213239 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    184.83
Residual Sum of Squares: 169.97
R-Squared:      0.080413
Adj. R-Squared: 0.018709
F-statistic: 5.97987 on 6 and 25 DF, p-value: 0.00055516
```

```
JK based on adjusted fertility
Jackknife variances:
lag(pdata_jk$Total.Benefit.Size, 1)                 lag(pdata_jk$Leave, 1)
                          3.525749e-04                          2.455518e-06
lag(pdata_jk$Childcare.spending, 1)     lag(pdata_jk$Family.policy.spending, 1)
                          1.575783e-04                          5.283484e-03
lag(pdata_jk$GDP, 1)                          lag(pdata_jk$Unemployment, 1)
                          1.272010e-02                          1.482554e-07

Sample of jackknife results:
lag(pdata_jk$Total.Benefit.Size, 1)                 lag(pdata_jk$Leave, 1)
1                           0.1514323                           -0.1067599
2                           0.1138784                           -0.1036259
lag(pdata_jk$Childcare.spending, 1)     lag(pdata_jk$Family.policy.spending, 1)
1                         -0.05768070                           -0.16802989
2                         -0.03257466                           -0.02265474
lag(pdata_jk$GDP, 1)                          lag(pdata_jk$Unemployment, 1)
1            0.0617495                                          -0.1096031
2           -0.1638174                                          -0.1088330

dropped:
1 Ireland, Norway, United Kingdom
2 Ireland, Poland, Spain

JK based on total benefit size
Jackknife variances:
lag(pdata_jk$Total.Benefit.Size, 1)                 lag(pdata_jk$Leave, 1)
                          1.916689e-05                          5.838209e-04
lag(pdata_jk$Childcare.spending, 1)     lag(pdata_jk$Family.policy.spending, 1)
                          2.095071e-04                          2.803445e-05
lag(pdata_jk$GDP, 1)                          lag(pdata_jk$Unemployment, 1)
                          4.408427e-04                          7.744811e-04

Sample of jackknife results:
lag(pdata_jk$Total.Benefit.Size, 1)                 lag(pdata_jk$Leave, 1)
1                           0.1924608                           -0.04074458
2                           0.1837048                           -0.089069351a
g(pdata_jk$Childcare.spending, 1)       lag(pdata_jk$Family.policy.spending, 1)
1                         -0.12512618                            0.0004284726
2                         -0.09617746                           -0.0101610417
lag(pdata_jk$GDP, 1)                          lag(pdata_jk$Unemployment, 1)
1                           0.07774518                           -0.07607122
2                          -0.11973769                           -0.13173022

Dropped:
1 Belgium, Hungary, Slovakia
2 Spain, Iceland, United Kingdom
```

5. Association between total benefit size and raw fertility; 2-year lag; no controls

```
Coefficients:
```

```
                                Estimate Std. Error t-value  Pr(>|t|)
lag(pdata$Total.Benefit.Size, 2) 0.165527   0.048127  3.4393 0.0006328 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    127.97
Residual Sum of Squares: 121.62
R-Squared:      0.049662
Adj. R-Squared: -0.00066122
F-statistic: 11.8291 on 1 and 25 DF, p-value: 0.0020549
```

JK based on fertility

```
Jackknife variances:
lag(pdata_jk$Total.Benefit.Size, 2)
                       0.0004841065

Sample of jackknife results:
lag(pdata_jk$Total.Benefit.Size, 2)
dropped
1 0.1611769 France, Iceland, Ireland, Sweden, United Kingdom
2 0.2051818           Greece, Italy, Poland, Portugal, Spain
```

JK based on total benefit size

```
Jackknife variances:
lag(pdata_jk$Total.Benefit.Size, 2)
                      7.411305e-05

Sample of jackknife results:
lag(pdata_jk$Total.Benefit.Size, 2)                          dropped
1                          0.1606358     Belgium, Hungary, Slovakia
2                          0.1778536 United Kingdom, Spain, Iceland
```

6. Association between total benefit size and raw fertility; 2-year lag; with controls

```
Coefficients:
                                  Estimate  Std. Error t-value Pr(>|t|)
lag(pdata$Total.Benefit.Size,  2)      0.148988   0.060151  2.4769   0.01359*
lag(pdata$Leave, 2)                    0.052285   0.073848  0.7080  0.47928
lag(pdata$Childcare.spending,  2)     -0.061620   0.105266 -0.5854  0.55857
lag(pdata$Family.policy.spendi     2) -0.022289   0.083956 -0.2655  0.79075
lag(pdata$GDP, 2)                     -0.117487   0.071635 -1.6401  0.10163
lag(pdata$Unemployment, 2)            -0.079418   0.042848 -1.8535  0.06442 .
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    127.97
Residual Sum of Squares: 117.08
R-Squared:      0.085136
Adj. R-Squared: 0.026781
F-statistic: 4.63949 on 6 and 25 DF, p-value: 0.0026851
```

Jk based on fertility

```
Jackknife variances:
lag(pdata_jk$Total.Benefit.Size, 2)                  lag(pdata_jk$Leave, 2)
                           3.157102e-05                           4.876869e-06
lag(pdata_jk$Childcare.spending, 2)     lag(pdata_jk$Family.policy.spending, 2)
                           4.627888e-06                           5.843018e-03
lag(pdata_jk$GDP, 2)                              lag(pdata_jk$Unemployment, 2)
                           4.109021e-03                           4.163949e-05

Sample of jackknife results:
lag(pdata_jk$Total.Benefit.Size, 2) lag(pdata_jk$Leave, 2)
1                            0.1864846              0.01611141
2                            0.1977222              0.02052814
lag(pdata_jk$Childcare.spending, 2)     lag(pdata_jk$Family.policy.spending, 2)
1                          -0.07091582                            -0.144802073
2                          -0.07521833                             0.008077204
lag(pdata_jk$GDP, 2)                              lag(pdata_jk$Unemployment, 2)
1           -0.02328742                                            -0.0941938
2           -0.15149071                                            -0.1070995

Dropped:
1 France, Iceland, Ireland, Sweden, United Kingdom
2    Greece, Italy, Poland, Portugal, Spain
```

Jk based on total benefit size

```
Jackknife variances:
lag(pdata_jk$Total.Benefit.Size, 2)                  lag(pdata_jk$Leave, 2)
                           1.548465e-06                           1.405179e-04
lag(pdata_jk$Childcare.spending, 2)     lag(pdata_jk$Family.policy.spending, 2)
                           8.583497e-05                           3.142770e-05
lag(pdata_jk$GDP, 2)                              lag(pdata_jk$Unemployment, 2)
                           7.037270e-04                           1.600420e-05

Sample of jackknife results:
lag(pdata_jk$Total.Benefit.Size, 2)                  lag(pdata_jk$Leave, 2)
1                            0.1671495                             0.05384563
2                            0.1696382                             0.03013758
lag(pdata_jk$Childcare.spending, 2)     lag(pdata_jk$Family.policy.spending, 2)1
-0.07730345                             -0.02102949
2                          -0.05877402                            -0.03224157
lag(pdata_jk$GDP, 2)                              lag(pdata_jk$Unemployment, 2)
1 -0.1373793                    -0.07691281
2 -0.0843236                    -0.08491386

Dropped:
1 Belgium, Hungary, Slovakia
2 Spain, Iceland, United Kingdom
```

7. Association between total benefit size and adjusted fertility; 2-year lag; no controls

```
Coefficients:
```

```
                                  Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Total.Benefit.Size, 2) 0.069850    0.061804  1.1302    0.259

Total Sum of Squares:    193.95
Residual Sum of Squares: 192.81
R-Squared:      0.0058351
Adj. R-Squared: -0.046809
F-statistic: 1.27729 on 1 and 25 DF, p-value: 0.26913
```

8. **Association between total benefit size and raw fertility; 2-year lag; with controls**

```
Coefficients:
                                    Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Total.Benefit.Size,  2)    0.0888864  0.0564896  1.5735  0.11625
lag(pdata$Leave, 2)                 -0.0706115  0.0512432 -1.3780  0.16885
lag(pdata$Childcare.spending,  2)   -0.1188133  0.0734824 -1.6169  0.10655
lag(pdata$Family.policy.spending, 2) 0.0079653  0.0984531  0.0809  0.93555
lag(pdata$GDP, 2)                   -0.0441453  0.1274469 -0.3464  0.72921
lag(pdata$Unemployment, 2)          -0.0732356  0.0375983 -1.9478  0.05201.
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    193.95
Residual Sum of Squares: 188.74
R-Squared:      0.026843
Adj. R-Squared: -0.035231
F-statistic: 0.910648 on 6 and 25 DF, p-value: 0.50339
```

9. **Association between benefit size for first children and first births; 1-year lag; no controls**

```
Coefficients:
                                   Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Benefit.size_1st.ch, 1) 0.043016    0.093421  0.4605    0.6454


Total Sum of Squares:    143.43
Residual Sum of Squares: 143.14
R-Squared:      0.0020662
Adj. R-Squared: -0.05067
F-statistic: 0.212014 on 1 and 25 DF, p-value: 0.64917
```

10. **Association between benefit size for first children and first births; 1-year lag; with controls**

```
Coefficients:
                                    Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Benefit.size_1st.ch, 1)    0.036907   0.077983  0.4733   0.6362
lag(pdata$Leave, 1)                 -0.028719   0.125028 -0.2297   0.8184
lag(pdata$Childcare.spending, 1)     0.044609   0.094593  0.4716   0.6374
lag(pdata$Family.policy.spending, 1) -0.016033   0.095123 -0.1686   0.8662
lag(pdata$GDP, 1)                    0.025297   0.099199  0.2550   0.7988
lag(pdata$Unemployment, 1)          -0.093077   0.059824 -1.5558   0.1204

Total Sum of Squares:    143.43
Residual Sum of Squares: 139.9
R-Squared:      0.024617
Adj. R-Squared: -0.037471
F-statistic: 0.916936 on 6 and 25 DF, p-value: 0.49928
```

11. Association between benefit size for first children and first births; 2-year lag; no controls

```
Coefficients:
                                   Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Benefit.size_1st.ch, 2) 0.038872   0.075986  0.5116   0.6092

Total Sum of Squares:    143.09
Residual Sum of Squares: 142.81
R-Squared:      0.001974
Adj. R-Squared: -0.050875
F-statistic: 0.261699 on 1 and 25 DF, p-value: 0.61344
```

12. Association between benefit size for first children and first births; 2-year lag; with controls

```
Coefficients:
                                    Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Benefit.size_1st.ch, 2)    0.0172350  0.0662666  0.2601   0.7949
lag(pdata$Leave, 2)                 -0.0281825  0.1108746 -0.2542   0.7995
lag(pdata$Childcare.spending, 2)    -0.0895809  0.1027630 -0.8717   0.3838
lag(pdata$Family.policy.spending, 2) 0.0069916  0.1014457  0.0689   0.9451
lag(pdata$GDP, 2)                    0.0064769  0.0681525  0.0950   0.9243
lag(pdata$Unemployment, 2)          -0.0980675  0.0616066 -1.5918   0.1121


Total Sum of Squares:    143.09
Residual Sum of Squares: 139.2
R-Squared:      0.027189
Adj. R-Squared: -0.034863
F-statistic: 0.887828 on 6 and 25 DF, p-value: 0.51848
```

13. **Association between benefit size for second children and second births; 1-year lag; no controls**

```
Coefficients:
                                  Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Benefit.size_2nd.ch, 1) 0.097054   0.068357  1.4198   0.1563

Total Sum of Squares:    145.8
Residual Sum of Squares: 143.75
R-Squared:      0.014072
Adj. R-Squared: -0.03803
F-statistic: 2.01587 on 1 and 25 DF, p-value: 0.16801
```

14. **Association between benefit size for second children and second births; 1-year lag; with controls**

```
Coefficients:
                                   Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Benefit.size_2nd.ch, 1)  0.065741   0.067962  0.9673   0.3339
lag(pdata$Leave, 1)                0.086008   0.101462  0.8477   0.3970
lag(pdata$Childcare.spending, 1)   0.083376   0.100681  0.8281   0.4080
lag(pdata$Family.policy.spending, 1)  0.031183   0.082294  0.3789   0.7049
lag(pdata$GDP, 1)                 -0.040171   0.133142 -0.3017   0.7630
lag(pdata$Unemployment, 1)        -0.083663   0.055344 -1.5117   0.1313

Total Sum of Squares:    145.8
Residual Sum of Squares: 138.16
R-Squared:      0.052398
Adj. R-Squared: -0.0079214
F-statistic: 1.86109 on 6 and 25 DF, p-value: 0.12767
```

15. **Association between benefit size for second children and second births; 2-year lag; no controls**

```
Coefficients:
                                  Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Benefit.size_2nd.ch, 2) 0.091079   0.063378  1.4371   0.1513

Total Sum of Squares:    145.49
Residual Sum of Squares: 143.44
R-Squared:      0.014071
Adj. R-Squared: -0.038138
F-statistic: 2.06518 on 1 and 25 DF, p-value: 0.1631
```

16. **Association between benefit size for second children and second births; 2-year lag;**

with controls

```
Coefficients:
                                    Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Benefit.size_2nd.ch, 2)    0.058969   0.066223  0.8905   0.3737
lag(pdata$Leave, 2)                  0.075955   0.106341  0.7143   0.4754
lag(pdata$Childcare.spending, 2)    -0.074683   0.107381 -0.6955   0.4871
lag(pdata$Family.policy.spending, 2) 0.022251   0.075661  0.2941   0.7688
lag(pdata$GDP, 2)                   -0.044753   0.093100 -0.4807   0.6309
lag(pdata$Unemployment, 2)          -0.062007   0.049428 -1.2545   0.2103

Total Sum of Squares:    145.49
Residual Sum of Squares: 139.72
R-Squared:      0.039633
Adj. R-Squared: -0.021625
F-statistic: 1.19789 on 6 and 25 DF, p-value: 0.33977
```

17. **Association between benefit size for third children and third births; 1-year lag; no controls**

```
Coefficients:
                                  Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Benefit.size_3rd.ch, 1) 0.123849   0.054189  2.2855  0.02271*
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    109.96
Residual Sum of Squares: 106.19
R-Squared:      0.034264
Adj. R-Squared: -0.016771
F-statistic: 5.22358 on 1 and 25 DF, p-value: 0.031031
```

Jk based on third births

```
Jackknife variances:
 lag(pdata_jk$Benefit.size_3rd.ch, 1)
                         9.56311e-05

Sample of jackknife results:
lag(pdata_jk$Benefit.size_3rd.ch, 1)                  dropped
1                            0.1073920 Ireland, Norway, Sweden
2                            0.1269502         Portugal, Spain
```

Jk based on benefit size for third children

```
Jackknife variances:
lag(pdata_jk$Benefit.size_3rd.ch, 1)
                        9.097061e-06

Sample of jackknife results:
lag(pdata_jk$Benefit.size_3rd.ch, 1)                              dropped
1                           0.1438489                             Hungary
```

```
2                              0.1378166 Iceland, Netherlands, United Kingdom
```

18. Association between benefit size for third children and third births; 1-year lag; with controls

```
Coefficients:
                                   Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Benefit.size_3rd.ch, 1)  0.100877   0.052788  1.9110  0.05659.
lag(pdata$Leave, 1)                0.052695   0.086570  0.6087  0.54301
lag(pdata$Childcare.spending, 1)   0.010250   0.079948  0.1282  0.89804
lag(pdata$Family.policy.spending, 1)  0.071328   0.079011  0.9028  0.36710
lag(pdata$GDP, 1)                 -0.103048   0.173931 -0.5925  0.55382
lag(pdata$Unemployment, 1)        -0.058149   0.044503 -1.3066  0.19195
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    109.96
Residual Sum of Squares: 103.12
R-Squared:      0.062177
Adj. R-Squared: 0.0024802
F-statistic: 2.241 on 6 and 25 DF, p-value: 0.072325

Jk based on third births
Jackknife variances:
   lag(pdata_jk$Benefit.size_3rd.ch, 1)                  lag(pdata_jk$Leave, 1)
                           8.158691e-05                              6.405500e-07
    lag(pdata_jk$Childcare.spending, 1) lag(pdata_jk$Family.policy.spending, 1)
                           5.877434e-04                              2.214481e-03
                  lag(pdata_jk$GDP, 1)           lag(pdata_jk$Unemployment, 1)
                           1.225909e-02                              4.725050e-08



Sample of jackknife results:
  lag(pdata_jk$Benefit.size_3rd.ch, 1) lag(pdata_jk$Leave, 1)
1                            0.0860346             0.04996444
2                            0.1040997             0.04836376
  lag(pdata_jk$Childcare.spending, 1) lag(pdata_jk$Family.policy.spending, 1)
1                          0.06191639                               -0.01226831
2                          0.01342955                                0.08184825
  lag(pdata_jk$GDP, 1) lag(pdata_jk$Unemployment, 1)
1            0.1174793                   -0.04984359
2           -0.1039622                   -0.05027833

Dropped:
1 Ireland, Norway, Sweden
2 Portugal, Spain

Jk based on benefit size for third children
Jackknife variances:
   lag(pdata_jk$Benefit.size_3rd.ch, 1)                  lag(pdata_jk$Leave, 1)
                           6.992071e-05                              5.807994e-04
```

```
     lag(pdata_jk$Childcare.spending, 1) lag(pdata_jk$Family.policy.spending, 1)
                           5.604673e-05                               1.178103e-04
                  lag(pdata_jk$GDP, 1)           lag(pdata_jk$Unemployment, 1)
                           5.234497e-05                               7.005559e-06


Sample of jackknife results:
   lag(pdata_jk$Benefit.size_3rd.ch, 1) lag(pdata_jk$Leave, 1)
1                             0.1283504             0.01653111
2                             0.1116267             0.06473067
   lag(pdata_jk$Childcare.spending, 1) lag(pdata_jk$Family.policy.spending, 1)
1                         0.008416721                                0.05687824
2                        -0.006556152                                0.07858633
  lag(pdata_jk$GDP, 1) lag(pdata_jk$Unemployment, 1)
1           -0.1213461                   -0.05012153
2           -0.1068761                   -0.05541513

Dropped:
1 Hungary
2 Iceland, United Kingdom
```

19. Association between benefit size for third children and third births; 2-year lag; no controls

```
Coefficients:
                                    Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Benefit.size_3rd.ch, 2) 0.099197    0.058142  1.7061  0.08862 .
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    109.93
Residual Sum of Squares: 107.26
R-Squared:      0.024266
Adj. R-Squared: -0.027402
F-statistic: 2.91083 on 1 and 25 DF, p-value: 0.10038

Jk based on third births
Jackknife variances:
lag(pdata_jk$Benefit.size_3rd.ch, 2)
```

```
                        4.207503e-05

Sample of jackknife results:
lag(pdata_jk$Benefit.size_3rd.ch, 2)
dropped
1                           0.08580227 Ireland, Norway, Sweden
2                           0.09877532         Portugal, Spain


Jk based on benefit size for third children
Jackknife variances:
lag(pdata_jk$Benefit.size_3rd.ch, 2)
                        5.439672e-07

Sample of jackknife results:
lag(pdata_jk$Benefit.size_3rd.ch, 2)                                dropped
1                           0.1215714                               Hungary
2                           0.1230465 Iceland, Netherlands, United Kingdom
```

20. Association between benefit size for third children and third births; 2-year lag; with controls

```
Coefficients:
                                  Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Benefit.size_3rd.ch, 2)  0.081269   0.060079  1.3527   0.1768
lag(pdata$Leave, 2)                0.042422   0.088580  0.4789   0.6322
lag(pdata$Childcare.spending, 2)  -0.066284   0.100163 -0.6618   0.5084
lag(pdata$Family.policy.spending, 2)  0.054805   0.090650  0.6046   0.5457
lag(pdata$GDP, 2)                 -0.077439   0.119174 -0.6498   0.5161
lag(pdata$Unemployment, 2)        -0.052474   0.039957 -1.3133   0.1897

Total Sum of Squares:    109.93
Residual Sum of Squares: 104.55
R-Squared:      0.048892
Adj. R-Squared: -0.011775
F-statistic: 1.69845 on 6 and 25 DF, p-value: 0.1629
```

21. Association between benefit size for fourth children and fourth births; 1-year lag; no controls

```
Coefficients:
                                  Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Benefit.size_4th.ch, 1) 0.123292   0.055734  2.2122  0.02741 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    147.07
Residual Sum of Squares: 143.78
R-Squared:      0.022414
Adj. R-Squared: -0.029247
F-statistic: 4.89364 on 1 and 25 DF, p-value: 0.036318


Jk based on fourth births
Jackknife variances:
 lag(pdata_jk$Benefit.size_4th.ch, 1)
                        3.181045e-05

Sample of jackknife results:
lag(pdata_jk$Benefit.size_4th.ch, 1)           dropped
1                            0.1087485         Ireland
2                            0.1200286 Portugal, Spain


Jk based on benefit size for fourth children
Jackknife variances:
lag(pdata_jk$Benefit.size_4th.ch, 1)
                       0.0001848058

Sample of jackknife results:
lag(pdata_jk$Benefit.size_4th.ch, 1)                                dropped
1                           0.1349165                                 Italy
2                           0.1077279 Hungary, Netherlands, United Kingdom
```

22. Association between benefit size for fourth children and fourth births; 1-year lag; with controls

```
Coefficients:
                                   Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Benefit.size_4th.ch, 1)   0.102215   0.050522  2.0232   0.0436 *
lag(pdata$Leave, 1)                 0.017784   0.096023  0.1852   0.8531
lag(pdata$Childcare.spending, 1)   -0.029618   0.076585 -0.3867   0.6991
lag(pdata$Family.policy.spending, 1)  0.097037   0.069489  1.3964   0.1632
lag(pdata$GDP, 1)                  -0.171586   0.227592 -0.7539   0.4513
lag(pdata$Unemployment, 1)         -0.061556   0.059886 -1.0279   0.3045
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

```
Total Sum of Squares:    147.07
Residual Sum of Squares: 139.83
R-Squared:      0.049254
Adj. R-Squared: -0.011266
F-statistic: 1.27964 on 6 and 25 DF, p-value: 0.30222
```

Jk based on fourth births

Jackknife variances:

```
   lag(pdata_jk$Benefit.size_4th.ch, 1)                  lag(pdata_jk$Leave, 1)
                          1.795350e-06                              2.652791e-04
    lag(pdata_jk$Childcare.spending, 1) lag(pdata_jk$Family.policy.spending, 1)
                          1.163442e-06                              1.948475e-03
                  lag(pdata_jk$GDP, 1)           lag(pdata_jk$Unemployment, 1)
                          1.794631e-02                              8.083098e-04
```

Sample of jackknife results:

```
  lag(pdata_jk$Benefit.size_4th.ch, 1) lag(pdata_jk$Leave, 1)
1                           0.10126169            -0.01269752
2                           0.09858188             0.01987726
  lag(pdata_jk$Childcare.spending, 1) lag(pdata_jk$Family.policy.spending, 1)
1                          -0.02370661                               0.01866389
2                          -0.02586387                               0.10694696
  lag(pdata_jk$GDP, 1) lag(pdata_jk$Unemployment, 1)
1           0.08122141                   -0.02724596
2          -0.18670623                   -0.08410753
```

```
Dropped:
1 Ireland
2 Portugal, Spain
```

Jk based on benefit size for fourth children

Jackknife variances:

```
   lag(pdata_jk$Benefit.size_4th.ch, 1)                  lag(pdata_jk$Leave, 1)
                          1.767309e-04                              6.371759e-04
    lag(pdata_jk$Childcare.spending, 1) lag(pdata_jk$Family.policy.spending, 1)
                          4.716994e-06                              5.058686e-08
                  lag(pdata_jk$GDP, 1)           lag(pdata_jk$Unemployment, 1)
                          2.683986e-04                              2.434831e-05
```

Sample of jackknife results:

```
  lag(pdata_jk$Benefit.size_4th.ch, 1) lag(pdata_jk$Leave, 1)
1                           0.11588118             0.01587625
2                           0.08929315            -0.03460844
  lag(pdata_jk$Childcare.spending, 1) lag(pdata_jk$Family.policy.spending, 1)
1                          -0.03594080                               0.09978780
2                          -0.03159707                               0.09933797

lag(pdata_jk$GDP, 1) lag(pdata_jk$Unemployment, 1)
1           -0.1648953                   -0.06222169
2           -0.1976610                   -0.05235289
```

```
Dropped:
1 Italy
2 Hungary, Netherlands, United Kingdom
```

23. Association between benefit size for fourth children and fourth births; 2-year lag; no controls

```
Coefficients:
                                  Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Benefit.size_4th.ch, 2) 0.088001   0.054183  1.6242    0.105

Total Sum of Squares:    147.02
Residual Sum of Squares: 145.11
R-Squared:      0.012998
Adj. R-Squared: -0.039267
F-statistic: 2.63789 on 1 and 25 DF, p-value: 0.11689
```

24. Association between benefit size for fourth children and fourth births; 2-year lag; with controls

```
Coefficients:
                                    Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Benefit.size_4th.ch, 2)    0.0750157  0.0518055  1.4480   0.148
lag(pdata$Leave, 2)                 -0.0031446  0.0960065 -0.0328   0.973
lag(pdata$Childcare.spending, 2)    -0.0778506  0.0985767 -0.7897   0.430
lag(pdata$Family.policy.spending, 2) 0.0489031  0.0791477  0.6179   0.536
lag(pdata$GDP, 2)                   -0.1294766  0.1581920 -0.8185   0.413
lag(pdata$Unemployment, 2)          -0.0800883  0.0591371 -1.3543   0.176

Total Sum of Squares:    147.02
Residual Sum of Squares: 141.29
R-Squared:      0.038989
Adj. R-Squared: -0.02231
F-statistic: 0.853411 on 6 and 25 DF, p-value: 0.54178
```

25. Association between benefit size by child age and raw fertility; 1-year lag; no

controls

```
Coefficients:
                            Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Child.age_92, 1) -0.086612   0.074908 -1.1563   0.2481

Total Sum of Squares:    128.05
Residual Sum of Squares: 126.34
R-Squared:      0.013372
Adj. R-Squared: -0.038767
F-statistic: 1.33693 on 1 and 25 DF, p-value: 0.25851
```

26. Association between benefit size by child age and raw fertility; 1-year lag; with controls

```
Coefficients:
                                    Estimate  Std. Error t-value Pr(>|t|)
lag(pdata$Child.age_92, 1)           -0.043191   0.083725 -0.5159 0.606
lag(pdata$Total.Benefit.Size, 1)      0.192760   0.067640  2.8498 0.004**
lag(pdata$Leave, 1)                   0.040563   0.072254  0.5614 0.574
lag(pdata$Childcare.spending, 1)      0.018704   0.093211  0.2007 0.841
lag(pdata$Family.policy.spendi    1)  0.022127   0.079819  0.2772 0.781
lag(pdata$GDP, 1)                    -0.114737   0.088814 -1.2919 0.197
lag(pdata$Unemployment, 1)           -0.083946   0.046699 -1.7976 0.072.
---



Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    128.05
Residual Sum of Squares: 114.4
R-Squared:      0.10665
Adj. R-Squared: 0.04783
F-statistic: 5.9168 on 7 and 25 DF, p-value: 0.00039223
```

27. Association between benefit size by child age and adjusted fertility; 1-year lag; no controls

```
Coefficients:
                            Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Child.age_92, 1) -0.072617   0.053127 -1.3669   0.1723

Total Sum of Squares:    194.29
Residual Sum of Squares: 193.08
```

```
R-Squared:      0.0061951
Adj. R-Squared: -0.046323
F-statistic: 1.86833 on 1 and 25 DF, p-value: 0.18383
```

28. Association between benefit size by child age and adjusted fertility; 1-year lag; with controls

```
Coefficients:
                                    Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Child.age_92, 1)          -0.068858   0.053390 -1.2897  0.1977
lag(pdata$Total.Benefit.Size, 1)     0.143912   0.057472  2.5040  0.0126*
lag(pdata$Leave, 1)                 -0.093771   0.053858 -1.7411  0.0823.
lag(pdata$Childcare.spending, 1)    -0.082266   0.069379 -1.1858  0.2363
lag(pdata$Family.policy.spendi    1) -0.045463   0.114726 -0.3963  0.6920
lag(pdata$GDP, 1)                   -0.074672   0.173364 -0.4307  0.6668
lag(pdata$Unemployment, 1)          -0.090953   0.044527 -2.0426  0.0416*
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares:    194.29
Residual Sum of Squares: 185.74
R-Squared:      0.044009
Adj. R-Squared: -0.018937
F-statistic: 2.8335 on 7 and 25 DF, p-value: 0.025557
```

29. Association between benefit size by child age and raw fertility; 2-year lag; no controls

```
Coefficients:
                           Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Child.age_92, 2) -0.053457   0.073815 -0.7242   0.4693

Total Sum of Squares:    127.97
Residual Sum of Squares: 127.26
R-Squared:      0.0055687
Adj. R-Squared: -0.04709
F-statistic: 0.524467 on 1 and 25 DF, p-value: 0.47567
```

30. Association between benefit size by child age and raw fertility; 2-year lag; with controls

```
Coefficients:
                                    Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Child.age_92, 2)           -0.0021217  0.0823396 -0.0258  0.979
lag(pdata$Total.Benefit.Size, 2)      0.1487783  0.0633250  2.3494  0.019*
lag(pdata$Leave, 2)                   0.0518032  0.0721085  0.7184  0.472
lag(pdata$Childcare.spending, 2)     -0.0614208  0.1045731 -0.5873  0.557
lag(pdata$Family.policy.spending, 2) -0.0222637  0.0842511 -0.2643  0.791
lag(pdata$GDP, 2)                    -0.1173140  0.0712505 -1.6465  0.100
lag(pdata$Unemployment, 2)           -0.0793494  0.0422077 -1.8800  0.060.
---

Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Total Sum of Squares:    127.97
Residual Sum of Squares: 117.08
R-Squared:      0.085144
Adj. R-Squared: 0.024783
F-statistic: 4.01345 on 7 and 25 DF, p-value: 0.0045072
```

31. Association between benefit size by child age and adjusted fertility; 2-year lag; no controls

```
Coefficients:
                           Estimate Std. Error t-value Pr(>|t|)
lag(pdata$Child.age_92, 2) -0.054272   0.047458 -1.1436   0.2534

Total Sum of Squares:    193.95
Residual Sum of Squares: 193.21
R-Squared:      0.0037872
Adj. R-Squared: -0.048965
F-statistic: 1.30777 on 1 and 25 DF, p-value: 0.26363
```

32. Association between benefit size by child age and raw fertility; 2-year lag; no controls

```
Coefficients:
                                    Estimate Std. Error t-value Pr(>|t)
lag(pdata$Child.age_92, 2)           -0.0542530  0.0479540 -1.1314  0.2584
lag(pdata$Total.Benefit.Size, 2)      0.0835193  0.0557253  1.4988  0.1345
lag(pdata$Leave, 2)                  -0.0829241  0.0524217 -1.5819  0.1143
lag(pdata$Childcare.spending, 2)     -0.1137327  0.0736721 -1.5438  0.1233
lag(pdata$Family.policy.spending, 2)  0.0086148  0.0987668  0.0872  0.9305
lag(pdata$GDP, 2)                    -0.0397182  0.1276397 -0.3112  0.7558
lag(pdata$Unemployment, 2)           -0.0714875  0.0370972 -1.9270  0.054.
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Total Sum of Squares:    193.95
Residual Sum of Squares: 188.08
R-Squared:      0.030273
```

```
Adj. R-Squared: -0.033709
F-statistic: 0.86832 on 7 and 25 DF, p-value: 0.54441
```

Conclusion

This section concludes the thesis by summarizing and discussing its main findings with reference to the two overarching research questions it has sought to answer in its four empirical papers. It thus outlines its intended contributions to the scholarly understanding of: (1) the interaction between fertility incentivisation and other – complementary, competing or conflicting – policy considerations around the size and design of child benefits; (2) the underlying socio-political and demographic implications of – and affected entities from – some of the main trends in the size and design of child benefits, at a time of increasingly common pronatalist policy and discourse. It also acknowledges several limitations and proposes some potential avenues for further research.

Providing analytically rigorous responses to these two overarching research questions seems particularly warranted at a time of rapid demographic change and an increasing proliferation of policy and political responses to it. As documented in detail in several components of this thesis, the existing social policy, demography, and political science scholarship abounds with evidence of low birth rates and (in some parts of the continent) decreasing population size in Europe (e.g. Frejka & Gietel-Basten 2016; Sobotka 2017), which has largely coincided with the steady growth in both the size and design complexity of child benefits over the past several decades (e.g. Daly & Ferragina 2018). Moreover, the existing (historical and contemporary) literature on these topics offers considerable insights into the evolution and transformation of pronatalism (e.g. Kligman 1998; Nakachi 2022), broadly defined as a (set of) discursive and/or policy action(s) aimed at increasing the birth rate (Togman 2019). As such, pronatalism has persisted over time, albeit in (sometimes drastically) different forms and with varying degrees of salience, across a wide range of socio-political, demographic, and geographical contexts, with its policy articulation gradually shifting towards more liberal measures, including child benefits.

Finally, some of the available literature has proposed and examined several important intersections between the policy(making) trajectories of contemporary child benefits and pronatalism (e.g. Cook et al. 2022, Szalma et al. 2022), while also underlining the significance of the variation in benefit size by child age, birth order, and household income as policy design features (Aaerts et al. 2023; Bornukova et al. 2024). However, given the frequently evolving nature and increasing complexity of contemporary child benefits, as well as their growing use as a pronatalist measure, these relationships have not been examined in a systematic fashion.

The three aforementioned types of variation in benefit size have informed the analytical strategy of the thesis throughout its empirical components (with the partial exception of Paper 2). As demonstrated in the descriptive analysis in papers 3 and 4, child benefits in Europe were larger in 2021 than they were in 2002, by 39,2 percentage points for middle-income households and 7,5 percentage points for low-income households, with middle-income households seeing near-

continuous year-on-year growth during this time. Moreover, as shown in Paper 1, the size of child benefits has been differentiated by the age and birth order of the child(ren), with these differences becoming even more pronounced over time. Child benefits were larger for 2-year-old children compared to 9-year-old and 17-year-old children by 9,9% in 2006 and by 17,7% in 2021, respectively. Variation by child age in this direction was observed in 73% of the analysed European countries in 2006 and in 72% of them in 2021. In terms of birth order, child benefits were larger for higher birth orders in 48% (132/276) of the tested country-birth order combinations in 2006 and in (a majority share of) 56% (176/312) of them in 2021. Moreover, variation in benefit size was particularly strongly tilted towards third children in both years.

As discussed at length in Paper 1 and revisited at a later stage in this concluding section, these variation patterns in benefit size can be ascribed some (not necessarily intentional) pronatalist potential, which might matter independently of the size of the benefits. Interestingly, Paper 3 found no evidence of a positive association between pronatalist government orientation and total benefit size, thus retrospectively lending further support to one of the key premises of this thesis (as well as the underlying foundation of its empirical strategy) that any examination of pronatalist considerations around child benefits must take into account not only their overall size but also their design patterns.

At the most basic level, the intended overarching contribution of this thesis has been to help improve the linkages between some of the burgeoning strands of academic literature on child benefits and pronatalism in contemporary European countries. In particular, child benefits have been identified in the existing literature on pronatalism an important policy instrument in the seven best-documented country cases (Belarus, Hungary, Italy, North Macedonia, Poland, Russia, and Serbia) outlined in the background chapter to this thesis. However, most of this literature has addressed child benefits as a small part of a much broader analytical focus on pronatalist politics and policy, which prevents a comprehensive understanding of their pronatalist potential (or lack thereof). On the other hand, the social policy literature has examined some important design features of child benefits, such as their frequently higher size for younger children and higher birth orders, as well as (the frequent lack of) means testing, but this scholarship has often

either eschewed a discussion of pronatalist orientations and implications (Aaerts et al. 2023; Bornukova et al. 2024), or it has only covered (some of) the seven best-documented pronatalist country cases in isolation (e.g. Speder 2021).

This thesis has sought to bridge these two research agendas by adopting an exploratory bottom-up approach of examining several dimensions of the three aforementioned types of variation in benefit size and drawing various inferences not only with regard to pronatalist, but also other (complementary, competing, or even conflicting) policy considerations. Thus, this thesis has studied benefit size variation by child age, birth order, and household income in an analytical sample encompassing not only the seven best-documented pronatalist country cases, but also other countries in Europe, including those not declaring a pronatalist government orientation. The key findings from Paper 1 caution against viewing the variation in the patterns of interest as unique to self-declared pronatalist countries, let alone to the seven best-documented cases. Instead, they suggest that the benefit prioritisation of younger children and higher birth orders, especially in middle-income households, has become a broader European trend (and one that is at least partly divorced from pronatalism), although the persistence of non-negligible cross-country heterogeneity in the results must also be noted. The remainder of this concluding section summarizes and discusses the findings this thesis has obtained by studying these patterns of variation, with reference to the two overarching research questions outlined in its background chapter and at the beginning of this concluding section.

How does fertility incentivisation interact with other policy considerations around the size and design of child benefits in European countries?

As discussed in the background chapter, in the form(s) in which they have manifested themselves throughout history, pronatalist policy and politics have often competed and even conflicted with various social policy objectives. This first overarching research question has sought to illuminate these interactions with reference to contemporary child benefits in Europe. Given the historical proliferation of illiberal policy measures undertaken in its name, most notably in the early 20th

century, it is unsurprising that pronatalism continues to be treated in the academic literature with particular caution to various policy or discursive indications of the ways in which it might be jeopardizing other policy objectives. These historically founded concerns have been amplified by the conservative nature of the (senior) ruling party in each of the seven best-documented country cases discussed earlier, with pronatalism manifesting itself also in the form of – or at the very least coinciding with – various restrictions to reproductive rights, most notably in Poland (Wilk 2022), Hungary (Speder 2021), and Italy (De Giorgi et al. 2023).

Given its policy instrument of interest, this thesis is unable to provide any comprehensive conclusion on the (lack of) distinctiveness of contemporary European pronatalism(s) from its (or their) historical precursors. However, it is well-positioned to comment on the interaction between pronatalist and other policy considerations in the size and design of child benefits.

As demonstrated in Paper 1 and Paper 3, the thesis has revealed several potential tradeoffs which deserve more attention in the academic literature and whose examination here provides a multilayered albeit inconclusive verdict regarding the extent to which fertility incentivisation complements, competes with, or conflicts with other policy considerations.

Through its particular interest in the variation in benefit size by child age, birth order, and household income, this thesis has sought to identify and investigate the ways in which such variation patterns can (intentionally or not) serve various policy functions, including fertility incentivisation. As elaborated in detail in Paper 1, childrearing costs tend to be higher for older children and lower birth orders (e.g. Corak et al. 2005; Lino et al. 2017). Since providing larger benefits in early childhood (i.e. in the more immediate future) and for higher birth orders (for which, as per e.g. Aassve et al. 2023, childbearing preferences tend to be less strong) can, on the other hand, be expected to carry stronger pronatalist incentives, child cost compensation has been conceptualized in opposition to fertility incentivisation. However, in terms of benefit size variation by child age, fertility incentivisation has been conceptualized in Paper 1 as complementary with another policy function (child development), in line with the abundant

literature on the long-term physical and cognitive development outcomes facilitated by stronger policies (including child benefits) in early childhood (e.g. Cooper & Stewart 2021).

In terms of the first counterposition, fertility incentivisation emerged as a more-than-four-times more commonly reflected policy function than child cost compensation in both 2006 and 2021. While it does not seem plausible that all or even most European governments consciously conceive of their benefit variation patterns in these terms, the dominance of variation patterns potentially conducive to fertility incentivisation at a time of high and increasing proliferation of pronatalist government orientations on the continent appears noteworthy. Yet, the policy reflection of fertility incentivisation (as measured by the set of metrics used in Paper 1) has also commonly coexisted with that of child development. In 2021, as many as 72% of countries were categorized under "child development" and 55% of countries were categorized under both "child development" and "fertility incentivisation", due to their shared variation in benefit size towards younger children. Since the list included countries commonly considered among the leaders in achieving a wide range of social policy outcomes (Bradshaw & Nieuwenhuis 2020), such as Denmark, Estonia, Finland, Norway, and Sweden, this finding cautions against an understanding of fertility incentivisation through variation(s) in benefit size as inimical to other policy considerations.

Drawing definitive conclusions in this thesis regarding the interaction between fertility incentivisation and other policy considerations in the size and design of child benefits in European countries is further complicated by the findings in Paper 3. As shown in the descriptive statistics in the paper, the middle-income to low-income benefit ratio increased by 29,8% between 2002 and 2021, having grown year-on-year during most of this time, except in the aftermath of the Great Recession (2009-2014), in contrast to trends towards more means-testing in previous decades (Ferrarini et al. 2012).

This finding from Paper 3 matches the spirit of an extensive strand of the family and social policy literature over the past several decades, which has been drawing attention to several ways in which family policies, including child benefits, continue to leave (some) children vulnerable

despite the near-continuous growth in aggregate spending. An important concern in this regard has emerged regarding the growing fiscalisation of child benefits (Ferrarini et al. 2012; Ferragina 2022), with the accompanying risks this has posed to children of unemployed parents. Another phenomenon of interest has been the "Matthew effect" (e.g. Plavgo & Hemerijck 2020), or the tendency of providing insufficient support to individuals and households with the strongest financial needs at the expense of wider policy eligibility, with an estimated half of child benefit spending in Europe being allocated to non-poor households (Bornukova et al. 2024). Further research is needed to examine the extent to which fertility incentivisation exacerbates the "Matthew effect", if at all, but the aforementioned findings point in this direction.

It might nonetheless be simplistic to conclude that the increasing avoidance of means testing in child benefit design, possibly facilitated by pronatalist considerations, is invariably detrimental to social policy objectives. In fact, this trend can be welcomed from a children's rights perspective representing a more equal policy treatment of children regardless of their – in this case, financial – background (e.g. Daly 2015). Moreover, it can be linked also to one of the best-documented conclusions in the social policy literature related to the "redistribution paradox" (Korpi & Palme 1998; Nelson 2006), or the tendency of countries with (more) universal policies, including child benefits, to also spend more on said policies *even on a per capita basis*, as evidenced by the number of top spenders with universal policies, most notably the Nordic countries. Thus, it would be prudent to refrain from strong normative assessments (in either direction) on the implications posed by the (possible) link between fertility incentivisation and a decline in benefit means-testing.

Finally, some conclusions on the interactions between fertility incentivisation and efforts to reduce child poverty can also be derived from Paper 1. The operationalisation of poverty reduction in this paper has required countries to be more oriented as regards the low-income household type (relative to the middle-income household type) towards higher birth orders and younger children, as child poverty is known to occur more commonly in large families with young(er) parents. Yet, these two conditions were simultaneously satisfied in only 14%-23% of

the sampled countries, with the share of such countries falling by almost four times between 2006 and 2021.

This finding from Paper 1 provides support to the already rich literature on welfare chauvinism: the reduction or wholesale withholding of welfare provisions from specific social or societal groups due to selective understandings of national belonging and thus benefit "deservingness" (e.g. Eick 2024). While the broader socio-political implications of these findings will be covered in the discussion under the second overarching research question below, it is worth highlighting here that the increasing prominence of fertility incentivisation in European family policy(making) risks exacerbating some already-existing trends of welfare chauvinism. The literature has documented some notable country cases, such as the Netherlands and United Kingdom, where child benefits are capped after a certain number of children (Reader et al. 2023; Mari 2024). With immigrants and ethnic minorities being disproportionately likely to have large families, such policies have been ascribed a potential intention of disincentivising fertility among said ethnic groups, in addition to policy motives such as work incentivisation and anti-redistribution.

The role of fertility incentivisation in this regard is, of course, ambiguous, as the most intuitive expectation would be for pronatalist considerations to make such instances of welfare chauvinism *less* likely. However, child benefit caps have also been observed in one of the most notably pronatalist countries in contemporary Europe, Hungary, where they have been interpreted as a potentially *anti*-natalist measure towards the Roma community (Guy & Kovacz 2006), signalling a selective application of pronatalism. More broadly, however, the systematic evidence of income-based selectivity for higher birth orders provided in Paper 1 and Paper 3 raises concerns about the potential pervasiveness of welfare chauvinism across a wide range of sociocultural and political contexts. The finding that even (most of the) countries where child benefits rise for higher birth orders in middle-income households provide *smaller* child benefits for said birth orders in low-income households seems worthy of further scholarly and policy attention.

What underlying socio-political and demographic implications are posed by the main trends in child benefit size and design in European countries at a time of increasingly common pronatalist policy and discourse, and for whom?

The second overarching question in this thesis draws each of the four empirical papers together in a multilayered effort to understand what the main trends in child benefit size and design are "about" in European countries today, with special attention to pronatalist considerations. In answering the associated question, the thesis has entertained several (not mutually exclusive) possibilities. First, given the persistence of below-replacement fertility rates and population aging around the continent over the past several decades, the analysis has allowed for the possibility that it is the "objective" demographic reality of low birth rates that has driven the growth in the size of child benefits, especially for higher birth orders and with wide income eligibility coverage. Second, it has sought to explore the extent to which the incentivisation of births through child benefits is effective in the first place. Third, it has invested a particular effort at understanding the predominantly national-conservative character (emerging across several components of the thesis) of the three variation patterns of interest.

The link between "objective" demographic trends, family policy, and pronatalism has been relatively understudied in the academic literature, possibly because, as stated on several previous occasions, both family policy and pronatalism have predated the contemporary fertility decline in Europe and have persisted across different historical, political, geographical, and indeed, demographic contexts. One noteworthy study, however, is Seeleib-Kaiser and Toivonen's work (2011) on the relationship between fertility trends and expansions of family policy, where the latter were found to have occurred mostly independently (in terms of timing) from (declining) fertility trends in Germany and Japan, despite having been ostensibly attributed (partly) to them in government discourse.

This finding had inspired one of the variables tested in Paper 3 in this thesis: the share of elderly population, which was used as a proxy for population aging under the assumption that higher

shares might be associated with larger child benefits. No statistically significant association was found between the share of elderly population and benefit size, supporting Seeleib-Kaiser and Toivonen's conclusion (2011) that family policies ought not to be seen as being primarily shaped by demographic trends.

Even if low fertility does not necessarily lead to policies which might boost it, to what extent can such policies even serve as an effective vehicle for boosting births? In the existing literature on this subject (e.g. Bersvik et al. 2021), which was documented in detail in Paper 4, child benefits are viewed as an important component of the pronatalist policy toolkit, but they are also seen as decidedly cost-ineffective. The findings in Paper 4 support this consensus, while adding some previously underexplored nuance to it by providing evidence of some (admittedly modest) "pronatalist premiums" stemming from benefit size variation in favor of younger children and higher birth orders. Yet, as illustrated in the discussion section of the paper, the relatively small share of third and fourth children in the population limits the contribution of these premiums to the overall fertility rate, thus further diminishing the pronatalist cost-effectiveness of child benefits.

But if child benefits can neither be seen as fueled by demographic trends nor as a cost-effective method of increasing fertility, what are they really "about" and what does this tell us about the pronatalist considerations around them? What implications do child benefits and/or pronatalism pose and for whom? An overarching feature of this thesis has been its non-deterministic understanding of pronatalism as a phenomenon at least partly divorced from its demographic context and stated policy objective of increasing births. As suggested by several key findings in Paper 2 and Paper 3, pronatalism tends to contain a highly political dimension expressed (through both discourse and policy) with somewhat clearly delineable ideological undertones, while also (partly) defying conventional ideological classification.

As documented extensively in the background chapter to this thesis, the historical iterations of pronatalism have tended to manifest themselves in a clearly illiberal and national-conservative

form (albeit hardly universally and certainly not in a homogeneous manner). During the Second World War, regimes as diverse as those in Italy, Germany, Spain, Portugal, France, and the Soviet Union, all resorted to severe abortion and contraception restrictions, including for pronatalist reasons (Hoffmann 2000), albeit not without differences in design, with concomitant anti-natalist measures against specific ethnic groups, such as forced sterilisation, being mostly limited to Nazi Germany (Pendleton 1978). Swedish pronatalism, on the other hand, is worth highlighting as a contemporaneous exception to the illiberal character of WWII-era pronatalism(s), as it took the form of financial support for housing large families, prenatal care, subsidized delivery, a maternity bonus, marriage loans, and a 12-week maternity leave, while coexisting with legalized contraception (Kramer 2014). The French *post*-WWII version of pronatalism has, in turn, been described as a cross-ideological cause embraced by traditionalists and progressives alike, with "substantial and eloquent pronatalism [being] emphasised in the discourse of French feminism" (Pedersen 1993).

The academic literature reveals a similar consensus around national-conservative connotations being predominant yet not omnipresent in *contemporary* pronatalism in Europe. Across the seven best-documented country cases outlined in the background chapter, including the two country cases studied in Paper 2 (North Macedonia and Serbia), pronatalist discourse and policy have been embraced by conservative ruling parties (Cook et al. 2022; Magda et al. 2018; Wilk 2020). Yet, the wide variety of formal pronatalist orientations (United Nations 2022) spanning governments of different ideological persuasions across time and space evidenced over the past several decades in Europe cautions against viewing pronatalism as a solely national-conservative phenomenon. Moreover, even in the seven best-documented country cases, pronatalism has been imbued with additional ideological orientations beside its national-conservative foundation, as evidenced by the poverty-reducing focus of pronatalist policy and discourse in Poland (Inglot et al. 2022) and the ideologically eclectic "ideal-type populist" framing of Hungarian pronatalism (Bartha et al. 2020).

The findings in Paper 2 and Paper 3 of this thesis support – and provide nuance to – the scholarly

consensus around a multi-layered understanding of the ideological orientations revealed by pronatalism, although with a particular emphasis on national-conservative components. The majority of the discursive utterances studied in Paper 2 (24/33, i.e. 73% in North Macedonia, and 38/47, i.e. 81% in Serbia) were categorised under the patriotic, ethnic or moral frames, while the socioeconomic frame emerged as the least common among the four framing types tested in Serbia and the second-least common in North Macedonia. Overall, the studied discursive material abounded with references to human reproduction as a historical duty towards the nation and one's own ancestors, an inherent precondition for a morally virtuous way of life, and in the case of Serbia, an essential survival strategy for the ethnically Serbian majority in the face of perceived threats by other allegedly hostile ethnic groups inside and outside the country.

The spirit of this overall finding in Paper 2 was matched by several key results in Paper 3, where a large number of the statistically significant associations between the proposed drivers and benefit size referred to national-conservative actors (or to themes commonly exploited by national-conservative policymakers). Among them, immigration stock was negatively associated with the aggregate benefit size in both income categories, as well as the birth-order specific benefit size for all four birth orders in the middle-income household and the first two children in the low-income household. Moreover, right-wing party strength was positively associated with the benefit size for fourth children in middle-income households (by contrast, left-wing party strength showed no positive associations with any of the measures of benefit size tested).

But should the national-conservative drivers of child benefits and framing of pronatalism observed in this thesis be interpreted as a purely ideological phenomenon? A plethora of findings related to national-conservatism might seem unsurprising at a time of increasingly national-conservative public attitudes and governing parties across Europe (e.g. Calhoun 2017; Whitehead et al. 2018). However, another (even more pervasive) phenomenon – emerging gradually but consistently throughout the continent during the period of interest in this thesis – might provide a better conceptual lens for understanding contemporary trends in both pronatalism as well as child benefit size and design, while also illuminating the inextricable interplay of ideological and

political considerations around these subjects.

This phenomenon is post-materialism. For at least several decades, and most acutely over the past decade, the political science scholarship has been highlighting a reversal in the relative importance of the two dimensions of the "two-dimensional ideological axis": a commonly used analytical heuristic composed of a left-right economic dimension and a liberal-conservative cultural dimension (e.g. Fukuyama 2018; Norris & Inglehart 2019; Hausermann 2020). While the two dimensions have interacted in different ways across time and space, with parties positioning themselves on any of the four (2x2) resulting quadrants, the left-right economic dimension has traditionally been considered dominant, reflecting the core material interests of the electorate and dividing said electorate mostly along class and income lines. Post-materialism has, instead, referred to the prioritisation of cultural preoccupations by voters and politicians alike, with education emerging as a stronger predictor of voting intentions and outcomes than income or class (e.g. Dalton 2018; Evans & Langsaether 2021; Bornschier et al. 2024).

Post-materialism resonates strongly with many of the findings in this thesis. In the political environment preceding the current post-materialist age, it might have seemed counterintuitive for the size of child benefits to be associated with right-wing party strength but not with left-wing party strength (Paper 3). However, this finding might appear less surprising in a socio-political context where redistributionist concerns might have become (perceived as) secondary to cultural concerns, including pronatalist concerns (especially in their predominantly national-conservative manifestation documented above). It seems noteworthy that right-wing parties, which, until a few decades ago, when pronatalism was far less common, were associated with lower child benefit spending (Ferragina & Seeleib-Kaiser 2015), have become associated with higher benefit spending around the same time as pronatalism has become more prominent.

The more consistently found association between benefit size and immigration stock points in a similar direction, with higher shares of foreign-born population potentially making policymakers (and possibly voters) more skeptical of high benefit sizes. The immigration-related finding(s) can,

in fact, be read as a product of a national-conservative *and* post-materialist shift in European politics. Opposition to immigration has indeed become higher in Europe in recent years, but in general, European electorates have even traditionally been in favor of reducing or at least not increasing immigration (e.g. Markaki & Longhi 2013; Czaika & De Lillo 2018), although inevitably to different extents across time and space. A bigger shift in recent years seems to have occurred at the level of salience (Hatton 2017), with opposition to immigration featuring more strongly than other policy and political concerns in the electoral calculus of politicians and voters alike, thus potentially exercising stronger influence over policymaking decisions, including with regards to child benefits.

Finally, the interplay of ideological and political considerations in a post-materialist context is also worth discussing in reference to the variation in benefit size by birth order. In fact, this interplay provides a potential explanation for the apparent contradiction between the finding (Paper 1) that most European countries provide larger child benefits for higher birth orders, on the one hand, and the fact that raising higher-order children tends to cost less on a per-child basis, coupled with the finding that any pronatalist gains among higher-order births only make a modest contribution to the overall fertility rate (Paper 4), on the other hand. Albeit admittedly at the risk of oversimplification, post-materialism warrants social policy, demography, and political science scholars to consider the possibility that this variation pattern might be explainable by its favorability to policymakers, even if it does not appear beneficial to either families or fertility outcomes. With voters making their electoral decisions increasingly in line with their education status, national-conservative policymakers increasingly derive their support from lower-educated groups (e.g. Gethin et al. 2022). Such groups are, in turn, disproportionately likely to form large families and benefit more from larger benefits for higher-order children (e.g. Rindfuss et al. 2016; Stichnoth & Yeter 2016).

As discussed earlier, however, policymakers seeking to derive political advantages from prioritizing large families face the conflicting consideration of the generally unpopular nature of policies perceived as (too) immigrant-friendly and/or redistributive. Given the typically right-wing

character of such concerns, these competing imperatives present a particularly difficult conundrum to right-wing policymakers, potentially explaining the observed selectivity in the provision of larger benefits for higher birth orders only for middle-income households. In fact, the diverse policy and political strategies adopted by (far-)right governing parties in response to these competing imperatives – ranging from expansion to retrenchment (e.g. Afonso 2015; Röth et al. 2018) to different types and forms of selectivity (e.g. Chueri 2020; Ennser-Jedenastik 2020) – are well-documented in the literature.

Overall, the specific mechanisms, manifestations, and outcomes of the demographic and (socio)political trends discussed with reference to the second overarching research question here ought to be disentangled through additional research. Interestingly, however, there is already some preliminary evidence of the specific electoral relevance of large and explicitly pronatalist child benefits, as Poland's pronatalist package has been credited with increasing the vote share of the pronatalist ruling party in 2019 by almost two percentage points, enabling it to win an absolute parliamentary majority (Gromadzki et al. 2022).

Limitations and final remarks

Needless to say, the conclusions outlined in this section as well as the thesis in its entirety come with several important limitations. The first two are inherent to the choice of child benefits and pronatalism as research objects. As one of the largest family policy instruments, child benefits are associated with a wide range of policy implications and outcomes, extending not only beyond pronatalism but also beyond the alternative policy functions considered in Paper 1 (e.g. Bradshaw & Nieuwenhuis 2020). Further research might adopt an even broader analytical focus as well as a more in-depth approach comparing the effectiveness with which child benefits fulfil said alternative functions, engaging with the already sizeable literature in this regard. Similarly, pronatalism can – and indeed has been – studied with regards to a wide range of other family and social policy instruments, not least parental leave and childcare (e.g. Luci-Greulich & Thevenon 2011; 2013). While this thesis has sought to offer a compelling set of justifications for selecting child benefits, not least their increasingly common use as a pronatalist measure and

complex policy design, exploring the interaction between pronatalism and other policy instruments might lead to different (kinds of) insights – including perhaps most notably in terms of gender – on all four dimensions of interest to this thesis: policy design, discourse, drivers, and fertility effects.

A related limitation is the operationalisation of child benefits themselves. The broad approach in this thesis encompassing fiscal and social benefits (i.e. tax-based and direct payments) alike confers advantages in terms of generalisability at the risk of potentially concealing important layers of variation, which could again affect the findings in various ways. Moreover, for at least two of the dimensions stated above (drivers and fertility effects), adopting a more disaggregated approach of conducting separate analyses at different levels of benefit size might lead to more nuanced findings. Disaggregation might also have been beneficial in terms of countries, as the combined estimates generated in the quantitative papers precluded any assessment of the potential confounding impact of broader institutional variation on the dimensions of child benefits and pronatalism tested in the thesis. A related improvement might have been to rely on household-level data, which could have increased the precision of the results as well as illuminating any variation by socioeconomic status beyond the kind enabled by the two levels of household income, three levels of child age, and four birth orders used in (parts of) this thesis. Furthermore, the documented trends in the existing literature but also some data (un)availability considerations made this thesis particularly sensitive to the national-conservative dimension(s) of pronatalism and child benefits, possibly at the expense of omitting (some) more progressive framings and drivers (from Papers 2 and 3). Finally, at a broader epistemological level, the mixed-methods nature of the thesis has at times complicated the effort to derive overarching or at least distinct yet mutually resonant findings across the four empirical papers.

Notwithstanding these limitations, as well as the additional smaller caveats identified previously in the respective sections of the individual empirical papers, this thesis has systematically examined the size and design of child benefits in contemporary European countries, with special emphasis on the pronatalist orientations and implications around them, thus attempting to

provide two sets of overarching scholarly contributions vis-à-vis its two overarching research questions. These overarching contributions stand in addition to some standalone contributions provided by the individual papers and analyzed in their respective discussion sections, most notably the Paper 2 insights on the potential role of national party landscapes in driving the types of framings used in pronatalist discourses.

The first set of contributions refers to the ways in which fertility incentivisation has been found to complement, compete with, and conflict with other policy considerations around the size and design of child benefits in European countries. In terms of variation in benefit size by child age and birth order, this thesis has found that fertility incentivisation tends to overshadow one important social policy objective (child cost compensation) and to coexist with another one (child development). In terms of variation in benefit size by household income, pronatalist government orientation has emerged in this thesis as a contributing factor to the declining use of means testing in the provision of child benefits and the selective increase in benefit size for higher birth orders (i.e. for middle-income households but not for low-income households). Thus, taken as a whole, this first set of overarching thesis contributions engages with some of the vibrant and ongoing debates in family and social policy literature around the interaction of different policy objectives, including (but not solely) in terms of core notions such as the relative merits of policy targeting and universality, the types of needs addressed by family and social policies and the types of families for which said needs are (attempted to be) addressed.

The second set of overarching contributions of this thesis refers to the identified underlying socio-political implications of – and affected entities from – some of the main trends in the size and design of child benefits, at a time of increasingly common pronatalist policy and discourse. This set of contributions cautions against a deterministic or literal understanding of – and approach to – pronatalism, as neither was (self-declared) pronatalist government orientation found to be systematically associated with aging populations, nor were child benefits found to provide a(n) (cost-)effective contribution to birth rates, even after disaggregating their size by child age and birth order. At the same time, several national-conservative characteristics of

pronatalism have emerged from this thesis, both in terms of the patriotic, ethnic, and moral framing of policymakers' concerns around low fertility as well as with regards to the associations between immigration stock (negative) and right-wing party strength (positive) and aggregate benefit size and/or benefit size for fourth children in middle-income households. Thus, in its entirety, this second set of overarching thesis contributions interacts with several prominent debates in the political science, demographic, and sociological literature around the implications posed by child benefits and pronatalism at a time of important demographic change(s) in an increasingly national-conservative and post-materialist socio-political context.

Finally, taken together, these two sets of overarching thesis contributions are intended to help inform future research around the two core subjects of interest in this thesis (child benefits and pronatalism), both of which are likely to continue to hold considerable and far-reaching implications for governments, families, and societies for the foreseeable future.

Bibliography

Aaerts, E., Marx, I., & Parolin, Z. (2023). Minimum income support for families with children in Europe and the US: Where does it stand? *Working Paper No. 22/03, University of Antwerp.*

Aassve, A., Cavalli, N., Mencarini, L., Plach, S., & Sanders, S. (2021). Early assessment of the relationship between the COVID-19 pandemic and births in high-income countries. *Proceedings of the National Academy of Sciences of the United States of America, 118*(36).

Bartha, A., Boda, Z., & Szikra, D. (2020). When populist leaders govern: Conceptualising populism in policy making. *Politics and Governance, 8*(3), 71-81.

Bergsvik, J., Fauske, A., & Hart, R. K. (2021). Can policies stall the fertility fall? A systematic review of the (quasi-) experimental literature. *Population and Development Review, 47*(4), 913-964.

Bornschier, S., Haffert, L., Häusermann, S., Steenbergen, M., & Zollinger, D. (2024). *Cleavage Formation in the 21st Century: How Social Identities Shape Voting Behavior in Contexts of Electoral Realignment*. Cambridge: Cambridge University Press.

Bradshaw, J. & Nieuwenhuis, R. (2020). Poverty and the family in Europe. In N. F. Schneider & M. Kreyenfeld (Eds.), *Research Handbook on the Sociology of the Family*. Elgar.

Bornukova, K., Hernández, A., & Picos, F. (2024). Investing in children: The impact of EU tax and benefit systems on child poverty and inequality. *JRC Working Papers on Taxation and Structural Reforms No. 2/2024.*

Cook, L., Iarskaia-Smirnova, E. & Kozlov, V. (2022). Trying to reverse demographic decline: Pro-natalist and family policies in Russia, Poland, and Hungary. *Social Policy & Society*, 1-21.

Cooper, K., Stewart, K. (2021). Does Household Income Affect Children's Outcomes? A Systematic Review of the Evidence. *Child Ind Res* **14**, 981–1005.

Corak, M., Lietz, C. & Sutherland, H. (2005). The impact of tax and transfer systems on children in the European Union. *Innocenti Working Paper No. 2005-04*. Florence, Italy: UNICEF Innocenti Research Centre.

Czaika, M., & Di Lillo, A. (2018). The geography of anti-immigrant attitudes across Europe, 2002–2014. *Journal of Ethnic and Migration Studies*, *44*(15), 2453-2479.

Dalton, R. J. (2018). Political realignment: Economics, culture, and electoral change.

Daly, M. (2015). Child-related financial transfers and early childhood education and care. *Discussion Paper, UN Women.*

Daly, M., & Ferragina, E. (2018). Family policy in high-income countries: Five decades of development. *Journal of European Social Policy, 28*(3), 255-270.

De Giorgi, E., Cavalieri, A., & Feo, F. (2023). From Opposition Leader to Prime Minister: Giorgia Meloni and Women's Issues in the Italian Radical Right. *Politics and Governance*, *11*(1), 108-118.

Eick, G. M. (2024). *Welfare chauvinism in Europe: How education, economy and culture shape public attitudes*. Edward Elgar Publishing.

Evans, G., & Langsæther, P. E. (2021). The realignment of class politics and class voting. In *Oxford Research Encyclopedia of Politics* (pp. 1-24). Oxford University Press.

Ferragina, E. (2022). Welfare state change as a double movement: Four decades of retrenchment and expansion in compensatory and employment-oriented policies across 21 high-income countries. *Journal of Social Policy and Administration*, 56 (5), 705-725.

Ferragina, E., Seeleib-Kaiser, M. (2015). Determinants of a Silent (R)evolution: Understanding the Expansion of Family Policy in Rich OECD Countries, *Social Politics: International Studies in Gender, State & Society*, 22 (1), 1–37.

Ferrarini, T., Nelson, K., & Höög, H. (2012). The fiscalization of child benefits in OECD countries. *GINI Discussion Paper*, 49. Amsterdam: AIOS (Institute for Advanced Labour Studies).

Frejka, T., & Gietel-Basten, S. (2016). Fertility and family policies in Central and Eastern Europe after 1990. *Comparative Population Studies, 41*(1), 3-56.

Gethin, A., Martínez-Toledano, C., & Piketty, T. (2022). Brahmin left versus merchant right: Changing political cleavages in 21 western democracies, 1948–2020. *The Quarterly Journal of Economics*, *137*(1), 1-48.

Guy, W., & Kovacz, M. (2006). EU-funded Roma programmes: Lessons from Hungary, Slovakia, and the Czech Republic. *Minority Rights Group International*.

Hatton, T. J. (2017). Public opinion on immigration in Europe: Preference versus salience.

Hausermann, S. (2020). Dualization and electoral realignment. *Political Science Research and Methods*, *8*(2), 380-385.

Hoffmann, D. L. (2000). Mothers in the motherland: Stalinist pronatalism in its pan-European context. *Journal of Social History, 34*(1), 35-54.

Inglot, T., Szikra, D., & Rat, C. (2022). Mother, families, or children? Hungary, Poland, and Romania. *University of Pittsburgh Press.*

Kaufmann, F. (2002). Politics and Policies towards the Family in Europe: A Framework and an Inquiry into Their Differences and Convergences. In *Family Life and Family Policies in Europe*, Vol. 2, Problems and Issues in Comparative Perspective, edited by Franz-Xavier Kaufmann, Anton Kuijsten, Hans-Joachim Schulze, and Klaus Peter Strohmeier, 419–490. Oxford: Oxford University Press.

Korpi, W., & Palme, J. (2003). New politics and class politics in the context of austerity and globalization: Welfare state regress in 18 countries, 1975-95. *American Political Science Review*, 97(3), 425-446.

Lino, M., Kuczynski, K., Rodriguez, N., & Schap, T. (2017). Expenditures on children by families, 2015. *Miscellaneous Report No. 1528-2015. United States Department of Agriculture, Center for Nutrition Policy and Promotion.*

Magda, I., Kielczewska, A., & Brandt, N. (2018). The “Family 500+” Child Allowance and Female Labour Supply in Poland. *Instytut Badan Strukturalnych*. Working Paper.

Markaki, Y., & Longhi, S. (2013). What determines attitudes to immigration in European countries? An analysis at the regional level. *Migration Studies*, *1*(3), 311-337.

Nelson, K. (2006). The last resort: Determinants of the size of means-tested minimum income protection policies in welfare democracies. In E. Carroll & L. Ericsson (Eds.), *Welfare politics cross-examined: Eclecticist analytical perspectives on Sweden and on the developed world* (pp. 85-116). Amsterdam: Aksel Atland Printers.

Pendleton, B. F. (1978). An historical description and analysis of pronatalist policies in Italy, Germany, and Sweden. *Policy Sciences, 9*(1), 45-70.

Plavgo, I., & Hemerijck, A. (2020). The social investment litmus test: Family formation, employment, and poverty. *Journal of European Social Policy*, 1-15.

Reader, M., Portes, J., & Patrick, R. (2022). Does cutting child benefits reduce fertility in larger families? Evidence from the UK's two-child limit. *Institute of Labor Economics*, 15203.

Seeleib-Kaiser, M., & Toivonen, T. (2011). Between reforms and birth rates: Germany, Japan, and family policy discourse. *Social Politics, 18*(3), 331-360. doi:10.1093/sp/jxr016

Sobotka, T. (2017). Post-transitional fertility: Childbearing postponement and the shift to low and unstable fertility levels. *Vienna Institute of Demography Working Papers, 01/2017.*

Spéder, Z. (2016). Fertility decline and the persistence of low fertility in a changing policy environment—A Hungarian case study. In R. Rindfuss & M. Choe (Eds.), *Low fertility, institutions, and their policies: Variations across industrialized countries.* Springer.

Szalma, I., Haskova, H., Olah, L., & Takacs, J. (2022). Fragile pronatalism and reproductive futures in European post-socialist contexts. *Social Inclusion*, 10(3), 82-86.

Togman, R. (2019). *Nationalizing Sex: Fertility, Fear, and Power.* Oxford: Oxford University Press.

United Nations. (2021). World population policies 2019: Highlights. Department of Economic and Social Affairs, Population Division.

Wilk, S. (2020). The role of family policy in solving demographic problems: Study of the Polish Program Family 500+. *European Journal of Sustainable Development*, 9(4), 84-92.

Thesis-Related Engagement

(internal presentations, conferences, research fellowships)

- Barnett Scholarship, Department of Social Policy and Intervention, October 2020 – June 2023
- Paper 1 (draft version), DSPI Family Policy Research Group, March 2022
- Paper 1 (draft version), DSPI Social Policy Research Group, March 2022
- Paper 1 (draft version), European Political Science Association, Prague, May 2022

- Paper 1 (completed version), British Society for Population Studies, Winchester, September 2022
- Paper 2 (draft version), DSPI Family Policy Research Group, February 2023
- Paper 1 (completed version), SERSPI Student Conference, Oxford, May 2023
- Paper 1 (completed version), ESPAnet, Warsaw, September 2023
- Paper 1 (adapted version), published in the Journal of Social Policy and Administration, December 2023
- Paper 4 (draft version), DSPI Family Policy Research Group, February 2023
- Research Fellowship, Institute for Human Sciences, Vienna, January-March 2024
- Paper 4 (completed version), Population Aging Conference, Regensburg, June 2024
- Paper 3 (draft version), Social Policy Conference, Ohrid, October 2024
- Paper 4 (completed version), Delayed Transition to Childbearing Conference, Vienna, November 2024